

# THE HIND SITE AND THE GLACIAL KAME BURIAL COMPLEX IN ONTARIO

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*The excavation of a comparatively large and well-preserved group of Late/Transitional Archaic burials from the Big Bend Conservation Park, in southwestern Ontario during the 1960s and 1970s produced a wealth of new data on "Glacial Kame". The Hind site, as well as a number of other similar burial sites in Ontario, are described in detail for the first time and are compared with known Late Archaic and Early Woodland sites in the lower Great Lakes area.*

## INTRODUCTION

The demand for sand and gravel during the rapid development of the American mid-west and southern Ontario in the nineteenth century brought about the removal of numerous glacial kames and sand hills. During the removal of these features, prehistoric burial sites were often uncovered and destroyed by untrained workers. Although verbal descriptions were usually sketchy and the recovery of the grave assemblages often selective, archaeologists were able to classify many of these burials within known cultural and temporal sequences. Nevertheless, a considerable number of these burial sites defied all efforts to relate them to recognized prehistoric groups.

In 1897, Warren K. Moorehead, Curator of Archaeology for the Ohio Archaeological Society, proposed the theory that a distinctive early culture (which he called "Glacial Kame" because many were found in these geological features) was responsible for these enigmatic interments (Moorehead 1897). It was not until the publication of Wilbur M. Cunningham's (1948) study of such burials, primarily in Michigan, Ohio and Indiana, that any serious effort was directed to testing this idea. The next major advance was made by Robert N. Con-verse (1980), who incorporated considerable information in the Ohio Historical Society's files that was either unavailable or unknown to

Cunningham. He combined this with recent discoveries by others to produce a Glacial Kame compendium. Much of this information, however, was still drawn from selectively recovered artifacts and eyewitness accounts by untrained individuals.

While reports of similar interments in Ontario have appeared in scientific journals since the turn of the century, until 1948 none of these discoveries were made under controlled conditions. In that year the Picton site, first reported by Wintemberg (1928:177), was excavated by William A. Ritchie, at that time Curator of Anthropology at the Rochester Museum of Arts and Sciences (Ritchie 1949).

By the late 1960s, quick action by non-professional archaeologists in southwestern Ontario had resulted in the partially controlled excavation of several "Glacial Kame" burial sites (Coppieters and Bosveld 1964; Donaldson 1966; Coppieters 1967), but the real breakthrough came in 1968. In the spring of that year two Ontario Archaeological Society members, Edith Smith and Stanley Wortner, learned that a local farmer had unearthed a human skull while operating an anhydrous ammonia applicator and had later dug into and refilled a nearby red ochre burial. Investigating, they discovered fragments of calcined and unburned human bone, copper beads, a galena nodule, bits of green clay and red-stained sand on the surface of a large sand knoll overlooking the Thames River. This knoll measured some 75 metres southwest to northeast and 50 metres northwest to southeast. Because of the rolling terrain and a general slope to the southeast, its height could only be roughly estimated as 4.5 metres. Subsequent controlled excavations, under the direction of the writers, revealed 23 burial features containing nine cremation deposits (representing a minimum of 15 individuals), 22 primary inhumations and a wealth of associated artifacts (Donaldson 1973; Wortner 1972).

In this report we give a detailed description of our findings on this burial location, now known as the Hind site, as well as all the information we could gather on other so-called "Glacial Kame" burial sites in southern Ontario (Figure 1). We also provide the results of the various specialist analyses carried out on the recovered material, compare these findings with those pertaining to other related sites reported from Ontario and adjacent areas, and offer some tentative conclusions.

## THE HIND SITE (AdHk-1)

### *Background Information and Excavation*

This site (named after Mr. Herman Hind, who was crop-leasing that portion of the property from the Lower Thames Valley Conservation Authority at the time of its discovery) is located on the north half of Lot 13, Range 3, Mosa Township, Middlesex County, and is just within the entrance to the Big Bend Conservation Park, approximately 4.8 kilometres southeast of Wardsville, Ontario (Figure 1, inset). It is situated on a high sandy knoll overlooking a series of similar but smaller knolls within the park. Noted on the plowed surface of several of these smaller knolls were fragments of burned and unburned human bone, worked chert and animal bone, Late Woodland potsherds and fragments of freshwater mollusc shell. The surface soil survey map for Middlesex County, prepared by the Department of Chemistry, Ontario Agricultural College, Guelph, in 1930, indicates the soil of these knolls is "Fox sand". This soil is a calcareous, shallow water, glacio-lacustrine deposit, formed when the early glacial lakes covered this area prior to 12,000 years ago. This soil's well-drained, high calcium carbonate content is probably responsible for the excellent state of preservation of the osteological material recovered during our excavation.

Early historic land survey records indicate that this site was within the Carolinian biotic zone, specifically in a stand of basswood and maple trees within a predominately beech/maple forest (Findlay 1978c). Since there have been no major geological or botanical changes for the last 4,500 years in this area (McAndrews et al. 1987:Plate 4) it is reasonable to suggest that, though slightly milder and less humid (Karrow and Warner 1990:34, Figure

2.16), a similar site setting prevailed at the time it was in use.

Work on this site commenced in May of 1968 and terminated in November, 1977. During this period 86 five-foot (1.75 m) units were opened on the sand knoll where Mr. Hind had unearthed the human skull and red ochre burial, and 83 of these were excavated to sterile subsoil (Figure 2). Our method of excavating these units was to remove the plow zone with trowel and brush, screen all removed soil through a 1/4 inch (6 mm) mesh, and plot all items recovered. Grave shafts and other large features encountered beneath the plow zone were excavated as a unit, often in quadrants to obtain accurate plans and profiles. The soil within the grave shafts was screened through a 2 mm mesh. All material within the grave shafts was plotted with reference to the unit datum stake and an extensive photographic record was maintained throughout. Where warranted; soil and radiocarbon dating samples were taken and complex features were removed intact for exposure in the laboratory. The soil from the latter was passed through a 1 mm mesh. Specialists were consulted to identify and verify our findings.

Although the sandy soil of this site was ideal for trowelling and exposing complex features, it tended to shear and slump when dry. More-over, when devoid of groundcover, it was subject to severe wind erosion. Such erosion removed over 10 cm of the plow zone near the top of the knoll during the winter of 1968-1969. To avoid these problems, and to ensure accurate plotting of the subtle colour and textural changes encountered in the features, we initially used portable water sprays during excavation. This procedure required great care to avoid contaminating soil and radiocarbon samples, and our final solution to this problem was to suspend all operations from about mid-May to mid-September each year, spread oat straw over the knoll, and plant cedar trees in the excavated units at the end of each season's work. Since the crop yield on this knoll was not worth the effort of cultivating it, Mr. Hind was quite agreeable to this procedure. The Lower Thames Valley Conservation Authority provided the cedar trees.

### *Features and Burials*

Burial 1 (Figures 2, 3a) was the grave dug by

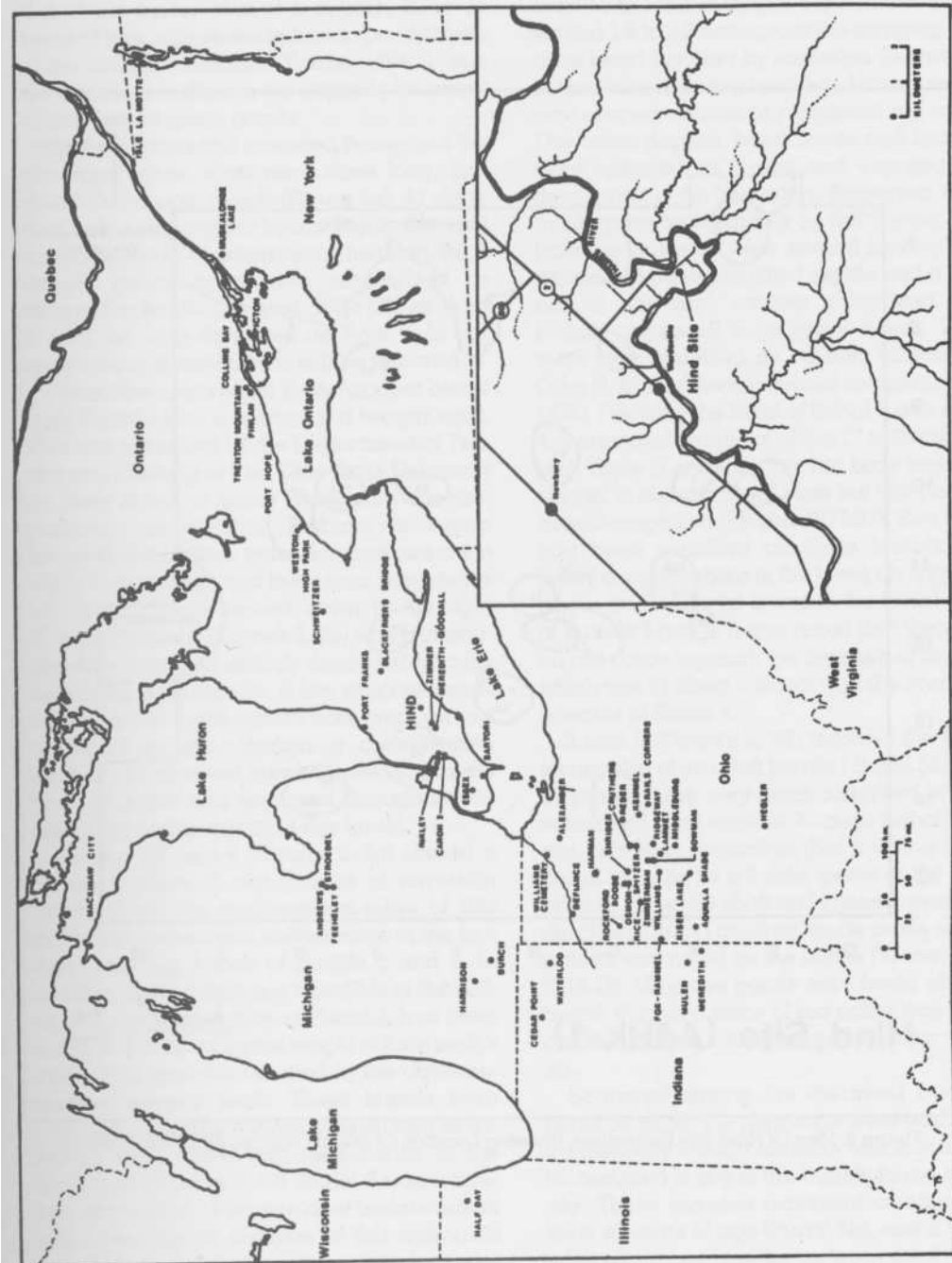


Figure 1. Map Showing Location Of "Glacial Kame" Sites With Insert Showing Detail Of Hind Site Area

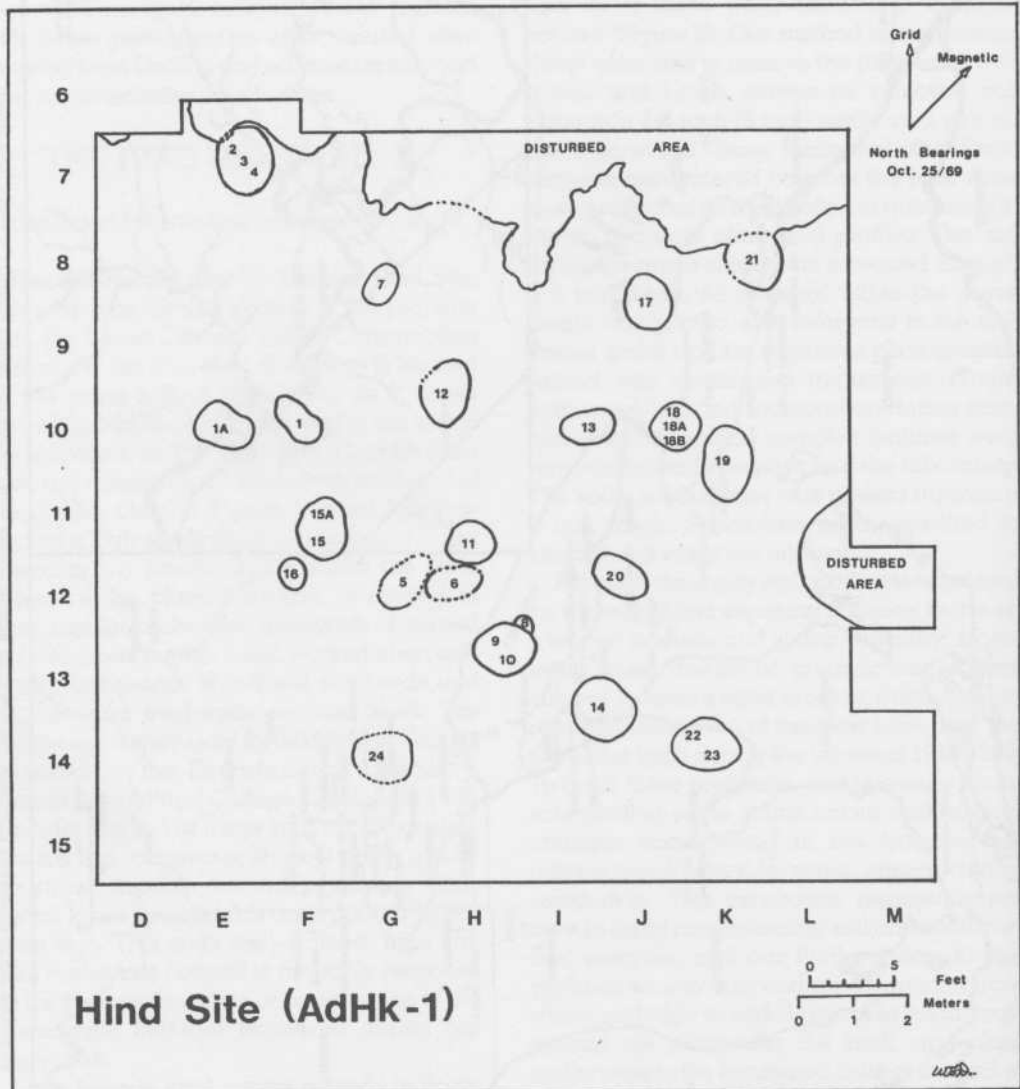


Figure 2. Plan Of Hind Site Excavation, Showing Location Of Burial Features And Disturbances

Mr. Hind. Only the area of the feet remained undisturbed. These were at the western edge of the red ochre-stained shaft, immediately above a large lump of green clay. The remainder of the burial, that of a female, 20 to 25 years of age, with stress-induced spondylolysis of the lumbar vertebrae (Varney 1994:2), was too disturbed to discern the original placement of the body or grave goods.

On the surface and scattered throughout the disturbed grave shaft were three long, thin cylindrical copper beads (Figure 5a), 44 short, thick cylindrical copper beads (Figure 5c), and several nodules of green clay. The short, thick copper beads have been categorized by others (Heckenberger et al. 1990:125) as Type 1, and the long thin ones as Type 2. In our report these designations will be followed.

Preserved in one of the Type 1 copper beads from Burial 1 was a portion of a two-ply cord. This was identified by the Department of Textiles and Clothing at The Ohio State University as stem fibres of some *Apocynum* species, probably intermediate dogbane or Indian hemp (Kathryn Jakes, personal communication 1993). This cordage had been spun down to the left (Z-spun) and twisted down to the right (S-twist). Burial 1A (Figures 2, 3b) was a cremation deposit almost entirely destroyed by cultivation and wind erosion. A few small pieces of charcoal and burnt human bone were all that remained in situ, though a considerable amount of cremated human bone was found on the surface and scattered throughout the plow zone in the vicinity of this burial.

Burials 2,3, and 4 (Figures 2, 3c) shared a common grave. A disturbance of uncertain origin along the northwestern edge of this grave had broken and shifted some of the foot and lower leg bones of Burials 2 and 3. In addition, the cranium and mandible of Burial 2, as well as the mandible of Burial 3, had been pressure-fractured by the weight of farm equipment. This process resulted in the displacement of several teeth. These burials were flexed primary inhumations lying on their sides, facing each other, with their heads to the southeast (Figures 6, 62). Burial 2 was a juvenile, about 12 to 13 years old, of undetermined sex. Osteological analysis of this individual revealed pathological conditions which may be related to chronic illness and/or malnutrition (Varney 1994:2-4). Burial 3 was a female, in her mid-thirties to mid-forties, showing signs of

excessive or premature ossification and arthritis. A bracelet of over 60 poorly preserved Type 1 copper beads (Figure 7) was draped over her right wrist. Many of these beads, which ranged from 3.5 to 6 mm in length, 3 to 7 mm in diameter and 1.6 to 2.2 mm across the stringing hole, were fused together by corrosion. Discovered beneath the right wrist and hand bones was an oval-shaped deposit of powdered red ochre. The ochre deposit, hand bones and bracelet were removed as a unit and exposed with dental tools in the laboratory. Preserved within this deposit, presumably by the copper salts from the bracelet, were several hickory nuts, the skull of an unidentified reptile and a number of spherical cavities containing what initially appeared to be grape seeds. These were later identified as calcium concretions (John H. McAndrews, personal communication 1974). Pillowing the head of Burial 2 was Burial

4, a cremated female of about 17 to 20 years of age. There is evidence that her body had been burned in an articulated state but had possibly been decapitated (Pfeiffer 1977:37). Red ochre had been sprinkled on these burials, with heavy concentrations in the lower rib cage and pelvic area of Burial 2, and in the facial areas of Burials 2 and 3. It was noted that there was no red ochre beneath the cranium of Burial 2, which was in direct contact with the cremated remains of Burial 4.

Burial 5 (Figures 2, 3d) involved the flexed inhumation of an adult female (Burial 5a), 40 to 45 years of age, very much disturbed by cultivation and wind erosion. Enough remained in situ, however, to confirm that it was a flexed burial lying on its left side, pelvis at the south edge of the grave shaft and knees drawn up to the chest. During analysis, some stress-related arthritis was noted on the bones (Varney 1994:

5, 18-19). No grave goods were found with this burial, though a trace of red ochre was noted on the cranium during preparation for analysis.

Scattered among the disturbed bones of Burial 5a within the plow zone were additional fragmentary human remains which could not be assigned to any of the burials found on this site. These remains represent a male of at least 40 years of age (Burial 5b), and a young adult whose sex remains undetermined (Burial 5c) (Varney and Pfeiffer this issue *infra*). There was no evidence of red ochre or copper staining on these bones.

Burial 6 (Figures 2, 3e) was also damaged by cultivation and wind erosion but enough remained *in situ* to determine that it was the primary inhumation of a female, 32 to 39 years of age, lying supine with the head to the southwest (Figure 62). The right arm was flexed across the waist and the left arm was flexed with the hand at the neck. The cranium and lower limb bones were shattered and scattered throughout the plow zone in units G12 and H12 (Figure 2). There was a purplish-red stained area in the grave shaft along the right hip area and evidence of a benign tumour of cartilaginous origin on the left innominate. There was also arthritis in most of the appendicular joints and spinal column (Varney 1994:6). There were no grave goods in the undisturbed portion of the grave shaft or evidence of the use of red ochre.

Burial 7 (Figures 2, 3g), which extended slightly into the plow zone, was a large cremation deposit representing the remains of at least seven individuals. Included were two juveniles and five probable adults. Most of the bone was thoroughly calcined, though some unburned bone was included. Found in association with this cremation were a deer (*Odocoileus virginianus*) metatarsal, unburned fragments from a Blanding's turtle (*Emydoidea blandingi*) shell, the medial portion of a bifacial projectile point or blade tool of quarried Onondaga chert, and over 1,400 small, thin, shell disc beads, some still in strand position and some stained with red ochre. There was no red ochre in the cremation deposit itself.

Burials 8, 9 and 10 (Figure 2) provide the only evidence on this site of one grave shaft encroaching on another. Burial 8 was a red ochre-stained cremation deposit which had been cut by the shaft of burials 9 and 10 (Figure 3f). It contained the remains of a young adult of undetermined sex, 18 to 25 years old. The only artifact found in this deposit was a charred antler tine, its tip ground at an angle to form a flat, ovate surface. Burial 9, an adult female, approximately 30 years of age, and Burial 10, a male, 45 to 60 years of age, were in-flesh burials placed against the western edge of the grave shaft, facing south, with the female "snuggled" behind the male (Figures 8, 62).

This grave shaft yielded one unmodified and one modified bi-facial retouch flake of Selkirk and Onondaga chert respectively (Chris Ellis,

personal communication 1994). It is thought that these were originally included with Burial 8 since cremated bone from this deposit was found scattered throughout the shaft fill of Burials 9 and 10. Two animal burrows penetrated this grave shaft but did not disturb the burials. There was, however, another disturbance immediately below the plow line, and the skull of Burial 10 was missing. Most of the maxillary teeth of this burial were still *in situ* at the edge of the disturbance, and it was later determined that they fit the skull dislodged by Mr. Hind's anhydrous ammonia applicator in 1968. The condition of several of the maxillary alveoli on this skeleton suggests that the extremely worn teeth were probably held in place by soft tissue alone. In addition, most of the post cranial articular surfaces of this skeleton were arthritic (Varney 1994:9). During excavation, ossified thyroid, costal and hyoid cartilage was recovered from Burial 10.

Burial 11 (Figures 2, 3h) is a cremation deposit representing a single, late adolescent male, burned in an articulated state. The sole artifact included with this deposit was a three-holed circular marine shell "gorget", roughly 6 cm in diameter (Figure 9). Use-wear was evident between the two suspension holes on the concave surface of this specimen, as well as between these holes and the rim on the convex surface. Use-wear was not observed at the central hole on either surface. There was no red ochre associated with this cremation.

Burials 12 and 21 (Figure 2) had been previously dug by persons unknown. Within the much disturbed grave shaft of Burial 12 (Figure 3i), which extended only 21 cm beneath the surface at the time of our excavation, little remained of the inhumations. An inventory of the skeletal remains indicated three adults were represented: one male, one female and one undetermined. Dental caries were noted on two teeth and the effects of periostitis covered one of the left femur fragments, indicating a chronic infection (Varney 1994:10). Possible grave inclusions, recovered from the disturbed grave shaft, were a marginella bead and the right costal plate from a large Blanding's turtle (Figure 10), an unworked lump of galena (Figure 5b), and numerous fragments of fresh-water mollusc valves. A small patch of red ochre-stained sand was encountered near the northwestern edge of the grave shaft, just below the plow zone. Burial 21 (Figure 4g)

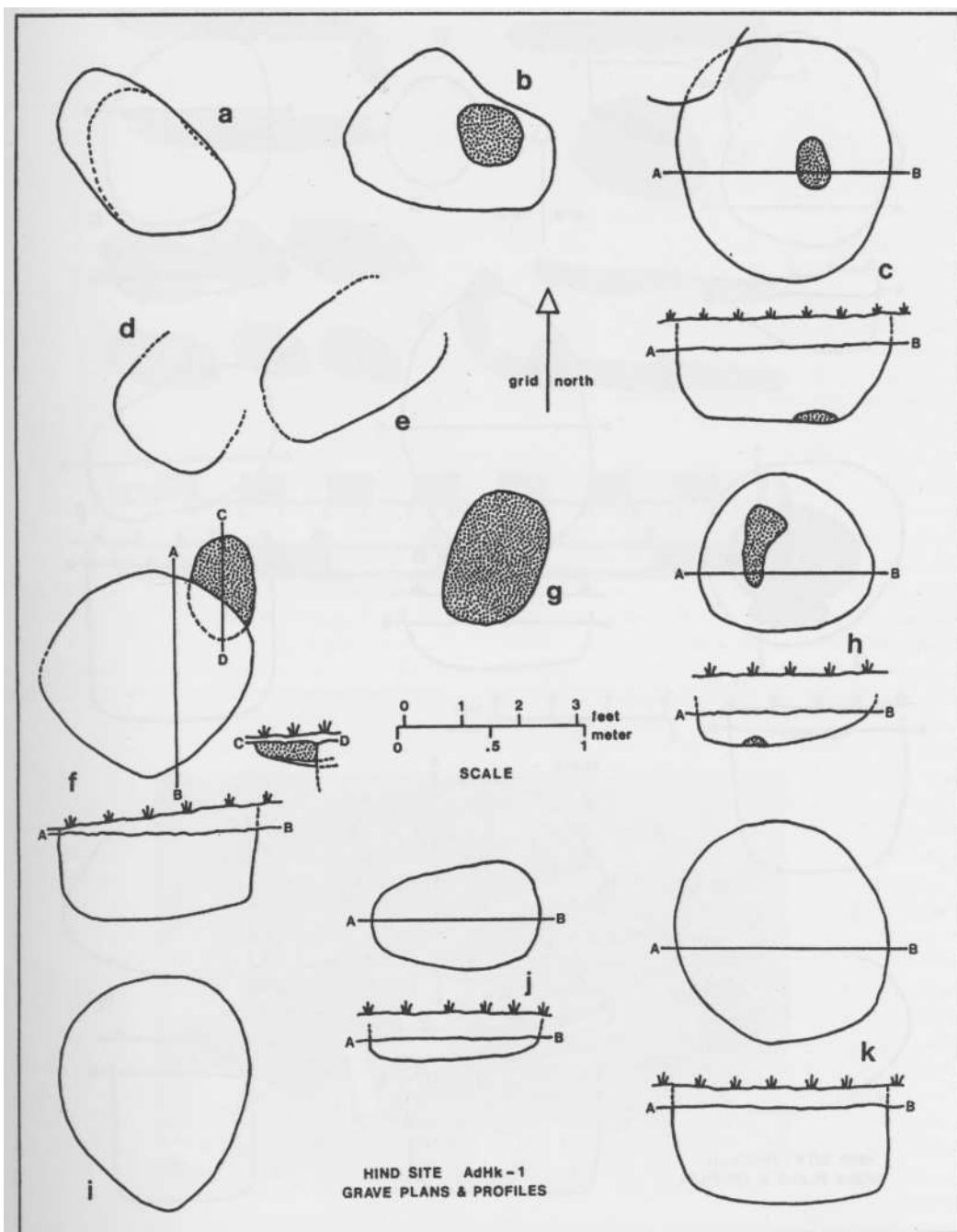


Figure 3. Hind Site Plans And Profiles, Burials 1-14. (Stippled Areas Indicate Cremation Deposits). Letters Denote Following Burials: (a) Burial 1; (b) Burial 1A; (c) Burials 2,3,4; (d) Burial 5; (e) Burial 6; (f) Burials 8,9,10; (g) Burial 7; (h) Burial 11; (i) Burial 12; (j) Burial 13; (k) Burial 14

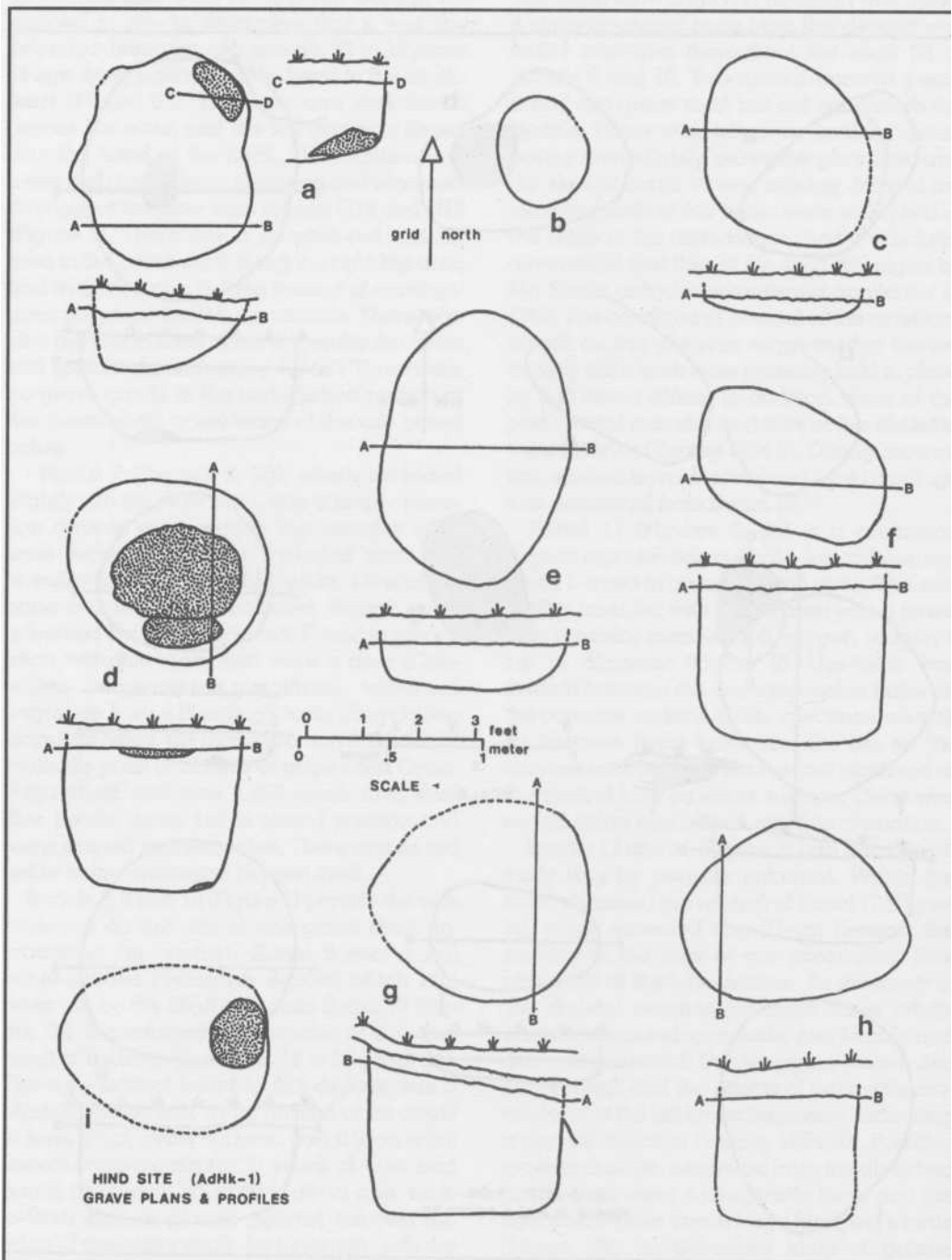


Figure 4. Hind Site Plans And Profiles, Burials 15-24. (Stippled Areas Indicate Cremation Deposits). Letters Denote Following Burials: (a) Burials 15,15A; (b) Burial 16; (c) "Burial 17"; (d) Burials 18,18A,18B; (e) Burial 19; (f) Burial 20; (g) Burial 21; (h) Burials 22,23; (i) Burial 24



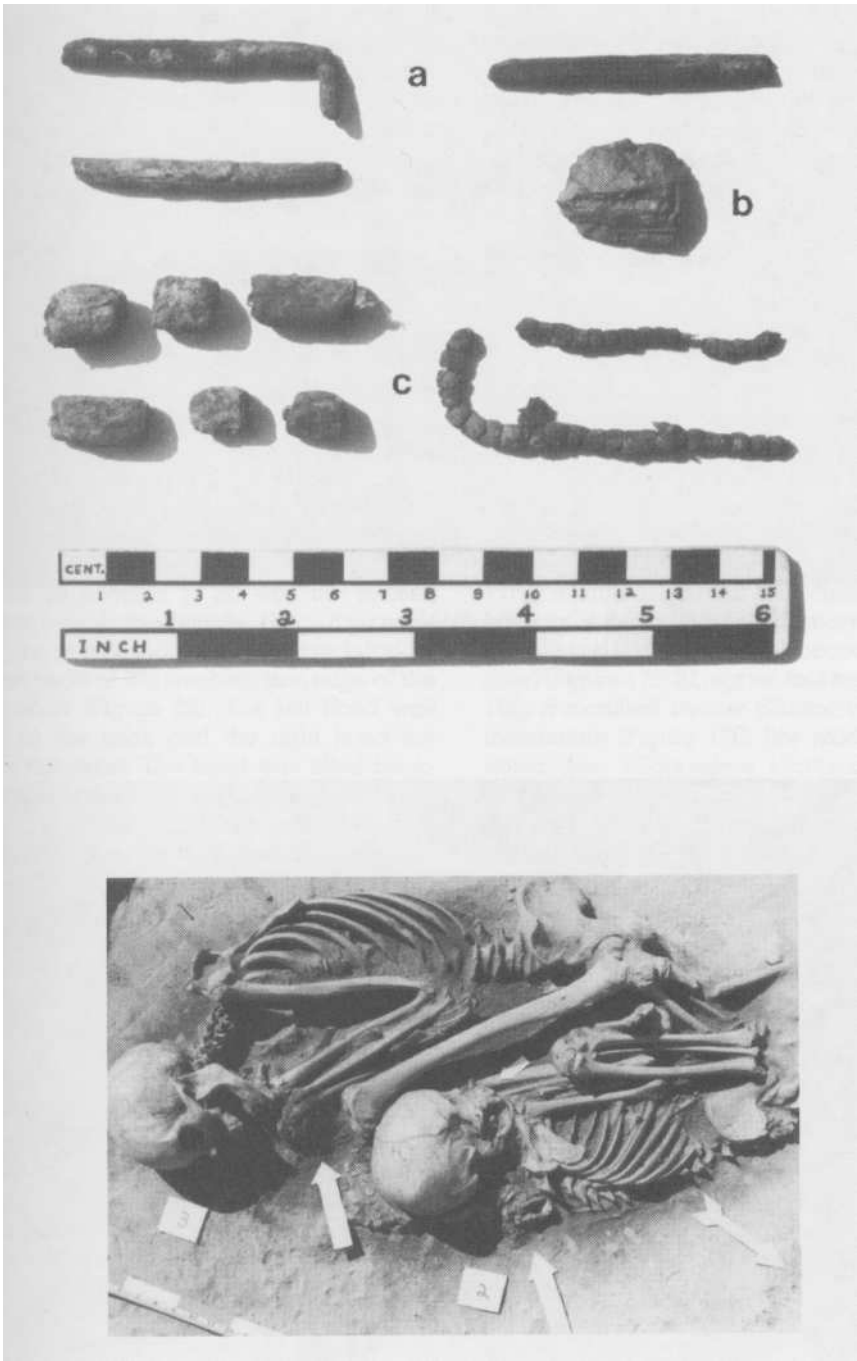


Figure 5. (Top) Hind Site, Items Recovered From Disturbed Burials 1 And 12 Figure 6. (Bottom) Hind Site Burials 2,3,4

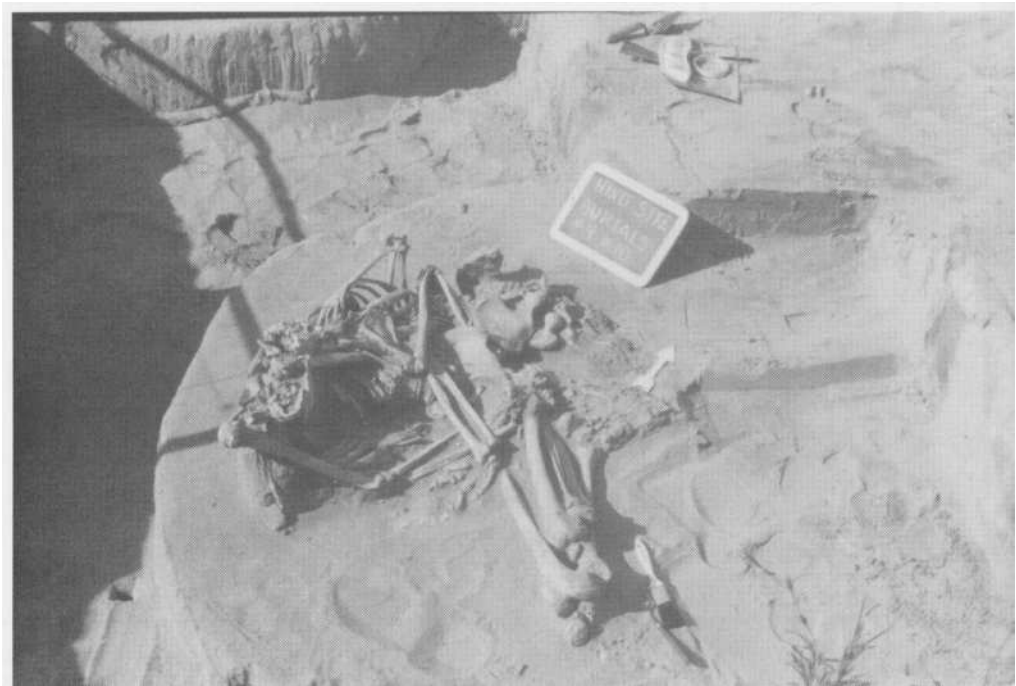
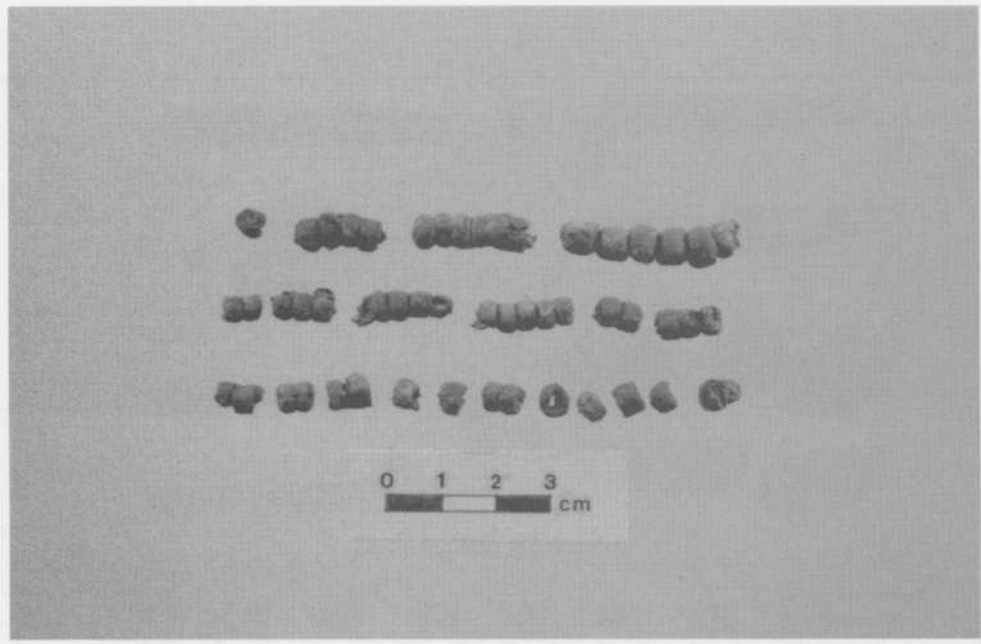


Figure 7. (Top) Hind Site Burial 3, Type 1 Copper Beads  
Figure 8. (Bottom) Hind Site Burials 9 And 10, Partially Removed

appears to have been exposed and looted during sand removal operations, which were responsible for a large area of disturbance along the northern and eastern margins of our excavation. The skeleton, that of a young adult female, possibly in her mid-twenties to mid-thirties, was shattered and scattered throughout the disturbed area. We could find no evidence of grave goods or the use of red ochre with this burial.

Burial 13 (Figures 2, 3j) is the inhumation of an infant about one year old, sex undetermined, lying supine with head to the northeast, arms at the sides and legs flexed (Figure 62). The skull, encountered a mere 7.5 cm below the surface, had been crushed by the weight of farm equipment. The only red ochre found with this burial was adhering to one of a string of at least eighteen very poorly preserved marine shell beads, found in situ around the neck (Figure 11).

Burial 14 (Figures 2, 3k) was the in-flesh burial of a probable female, 15 to 18 years of age, lying in a flexed position on her left side, with the head at the southeastern edge of the grave shaft (Figure 62). The left hand was flexed at the neck and the right hand lay across the waist. The head was tilted back-wards and to the right, in part the result of the collapse of an animal burrow beneath it (Figure 13). Just below the right elbow, between the ninth and tenth right ribs, was a trianguloid or heart-shaped marine shell pendant in which three holes were drilled (Figure 12). The disproportional size of the suspension holes and dual wear pattern on the larger of these suggests this artifact is probably the reworked "toe" portion of a sandal-sole "gorget", with the larger of the two suspension holes originally being the "toe" end hole. Wear patterns were observed between the parallel suspension holes on the concave surface, and also diagonally outward towards the upper edge on the convex surface. The remaining hole shows no definite wear patterns. A considerable amount of red ochre had been used with this burial, particularly in the abdominal area and between the drawn up knees and chest. Harris lines (Figure 59), as revealed in a radiograph of the right tibia (Varney 1994:11), suggest that this individual overcame several bouts of some growth arresting factor, such as disease or malnutrition, during her short life.

Burial 15, which shared a common grave

with Burial 15A (Figures 2, 4a), was the flexed in-flesh burial of a 13 year old adolescent. Sexual indicators were not well enough developed to positively establish the sex of this individual. The body had been laid on its left side, with the head and shoulders slightly elevated at the southeastern edge of the grave shaft (Figures 14 and 62). A burrowing animal had disturbed several of the foot bones and may have dragged one or more of the grave goods into the plow zone at the northern edge of Burial 16 (Figures 2, 14, centre left, 18k, top and bottom).

Thirty two grave inclusions were found in situ with this burial. Most of these had been placed in an oval-shaped area having its long axis running from the waist to a point some 60 cm north of the feet (Figure 15). Included were a modified rostral portion of a black bear (*Ursus americanus*) skull (Figure 17a); a modified female fisher (*Martes pennanti*) skull (Figure 17b); modified left half mandibles from an adult male fisher (Figure 17j), marten (*Martes americana*) (Figure 17h) and raccoon (*Procyon lotor*) (Figure 17i); 32 marten foot bones (Figure 18f); a modified beaver (*Castor canadensis*) innominate (Figure 17f); five modified white tailed deer (*Odocoileus virginianus*) metapodials, comprising three metacarpals which had their neural canals enlarged and smoothed (Figure 18a,b,c) and two metatarsals which had their proximal ends in contact with their associated tarsal bones, all of which were in the correct anatomical position (Figure 18d,e), indicating the presence of ligamentous attachment or binding (Savage 1972); three deer antler tine punches or flaking tools (Figure 17g); a cut and notched antler tine (Figure 17k); an antler tine projectile point (Figure 17l) which had been hollowed out to a depth of 2.3 cm for hafting; the shaft portion of a deer metacarpal, showing some slight evidence of use-wear at one end (Figure 18k, centre); and two beaver incisors (Figure 17e).

Also recovered was a use-worn right valve of the freshwater mollusc *Ablema plicata costata* (Ortmann 1919:28, Plate 3) and three left valves of the freshwater mollusc *Ligumia recta* (Clarke and Berg 1959:52-53, 78-79) which, although not found nested in situ, fit neatly together as a set (Figure 17d). The largest of these had a cut longitudinal groove forming an elliptical perforation near its centre.

The stone industry included one double-

pointed and one T-shaped drill of primary deposit Onondaga chert (Figure 18g,h), the latter with some basal grinding; the basal portion of a corner notched bifacial point of primary deposit Onondaga chert, exhibiting a wear pattern that suggests subsequent use as a scraper or strike-a-light (Figure 18i); a finely polished cigar-shaped stone pipe with a cut and bevelled portion of the left tibia of a medium-sized dog or wolf (*Canis* sp.) inserted in the chipped smaller end (Figure 17c); and a sandstone abraded with adhering pigment (Figure 18j).

A strand of 108 Type 1 copper beads were found in place around the neck of the individual interred in this grave. Leached salts from these beads had preserved so much organic material around the neck and hands (Figure 16) that the entire area was blocked out and removed as a unit for laboratory exposure. During this task it was noticed that there appeared to be a fabric impression on some of the beads. Magnification revealed that this was an "over-two-under-one" fine twilled plaiting, with warp and weft members crossing obliquely (Figure 19a). Furthermore, several of the beads were covered on one side with mineralized animal or human hair (Figure 19b). Several large lumps of green clay were found beneath the right shoulder and neck of this burial.

When the skull was lifted to facilitate the removal to the laboratory of the blocked out portion of the burial, a black organic mass was discovered in the foramen magnum. A sample of this was submitted to Dr. Peter Lewin of The Hospital For Sick Children, Toronto for preparation and microscopic examination to determine if it was human soft tissue preserved by copper salts from the necklace. This procedure revealed readily recognizable human collagenous fibres and nerve tissue with myelin fibres. Microscopic examination of a bone spicule from the skull showed the Haversian systems intact and osteocytes within the Haversian spaces (Savage 1975). A selection of bone from this burial, submitted to the University of Saskatchewan for C14 dating (S 1061), produced a date of 2875(+/-75)B.P. (Wilmeth 1978:124). Radiographs of the tibiae and radii revealed several Harris lines (Varney 1994:11).

Burial 15A (Figures 2, 4a), a cremated, middle aged male, burned in articulation (Pfeiffer 1977:141), yielded the first two bar type bird-

stones found in situ under controlled conditions in Ontario (Figure 20b,c). These bird-stones were formed from banded slate, one with the banding forming an eye, the other having a series of very fine notches along the top of the head, the lower right edge of the "beak" and left top frontal edge of the tail. A tapered hole was drilled at each end of the body, near the base. These intersected similar holes drilled from the base, presumably for suspension or functional attachment. Also recovered was a three-holed, circular marine shell "gorget" (Figure 17m) with a use-wear pattern identical to the specimen recovered from Burial 11, a two-holed rectangular "gorget" of banded slate (Figure 20a) and two unworked lumps of pyrite with a combined weight of 142.58 grams. A small amount of red ochre had been mixed with the ash and bone of this deposit.

A sample of cremated bone from this deposit was submitted to Gakushuin University, Tokyo, where it was split and C14 dated by three techniques (GaK-3794a,b,c). These produced the dates 4570(+/-120)B.P., 2920 (+/-170)B.P. and 1790(+/-100)B.P. respectively (Wilmeth 1978:124).

Burial 16 (Figures 2, 4b) was the in-flesh burial of an infant, three to four months old, lying supine with the head to the south, hands clasped at the waist and legs slightly splayed (Figure 62). The cranium, lying just beneath the base of the plow zone, had been crushed by the weight of farm equipment. Other than a small amount of red ochre sprinkled over the body there was no evidence of grave goods.

"Burial" 17 (Figures 2, 4c) was initially thought to be another cremation almost entirely destroyed by cultivation and wind erosion. Only a handful of charcoal and three small fragments of burned bone were recovered in situ from this deposit. On the basis of this recovery, and the amount of calcined human bone in the surrounding plow zone, this feature was given the designation Burial 17. Subsequent laboratory examination of the three in situ bone fragments revealed that two were not large enough to be identified and that the third, a portion of skull, was not human (Tamara Varney, personal communication 1993). Although it may in fact be the remnant of a cremation deposit, the ambiguous evidence precludes a definitive designation.

Burials 18, 18A and 18B (Figures 2, 4d)

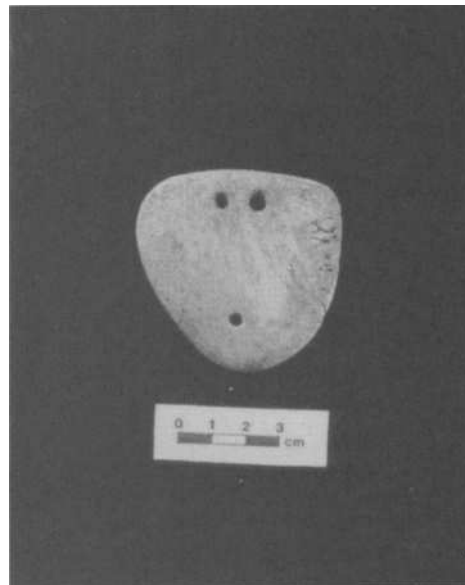
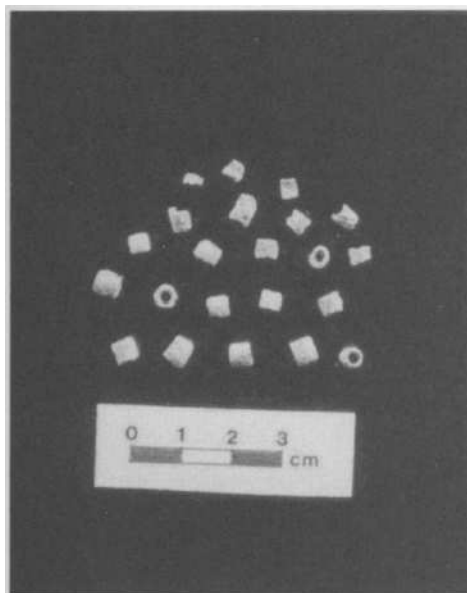
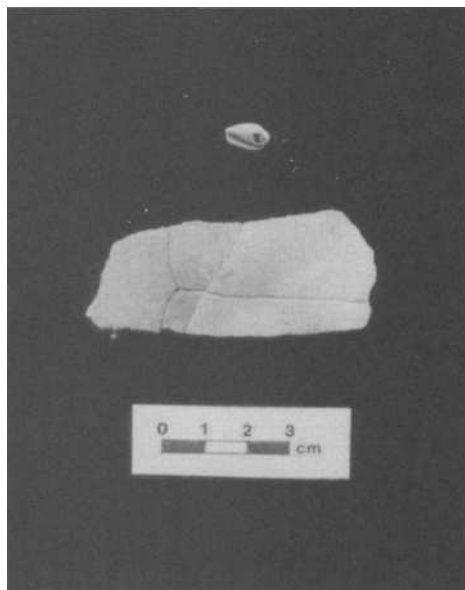
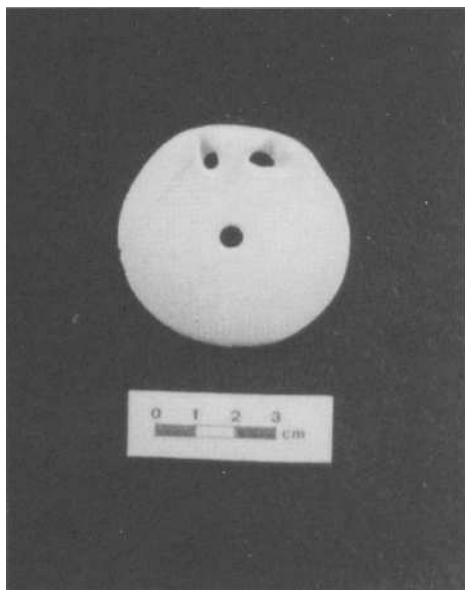


Figure 9 (Top left) Hind Site Burial 11, Marine Shell "Gorget"  
Figure 10.(Top right) Hind Site Burial 12, Marginella Bead And Costal Plate Of Blanding's Turtle From Disturbed Shaft  
Figure 11. (Bottom left) Hind Site Burial 13, Marine Shell Beads  
Figure 12. (Bottom right) Hind Site Burial 14, Marine Shell Pendant



Figure 13. (Top) Hind Site Burial 14, Showing Marine Shell Pendant in situ At Right Elbow  
Figure 14. (Bottom) Hind Site, View Of Burial 15 (Centre), 15A (Centre, Rear) And 16 (Left Foreground)

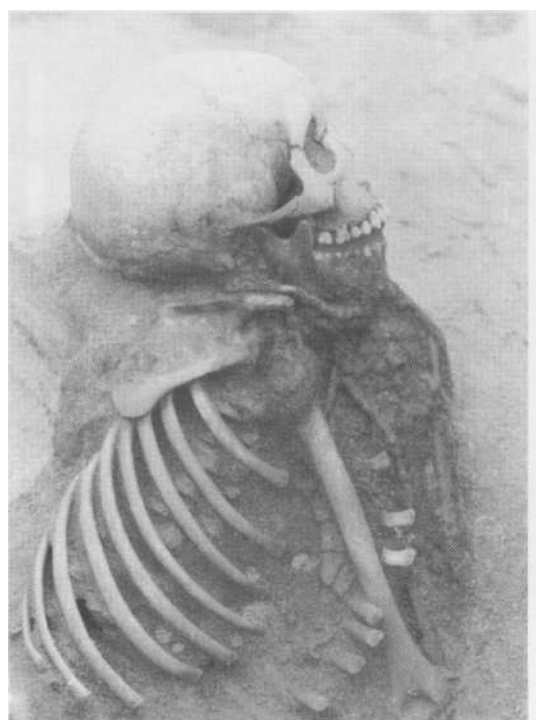


Figure 15. (Top) Hind Site Burial 15, Detail: Cluster Of Grave Goods Exposed in situ  
Figure 16. (Bottom) Hind Site Burial 15, Detail: Copper Bead Necklace And Preserved Organic Matter At Neck

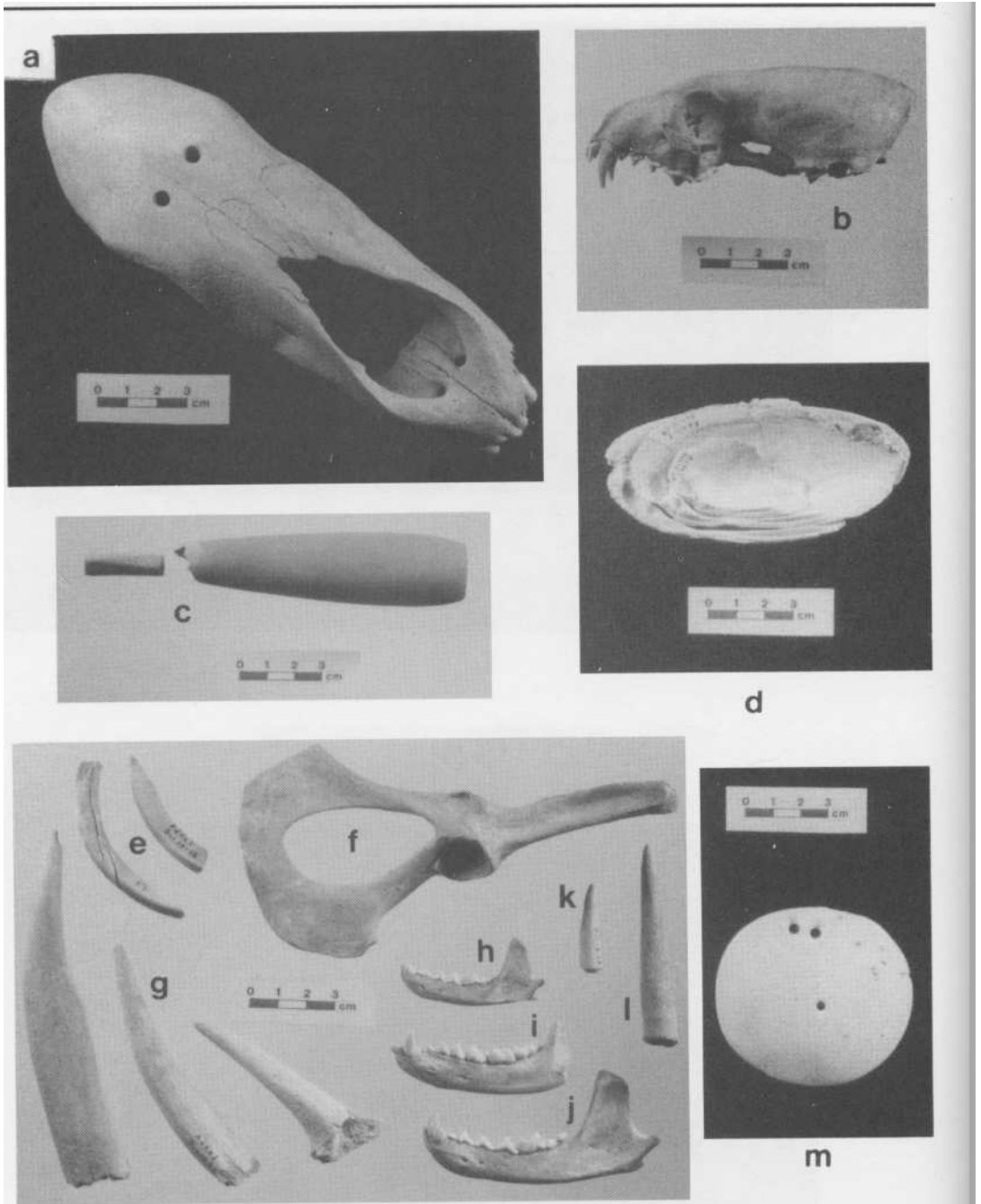


Figure 17. Hind Site-Grave Inclusions: Burial 15 (a-l), Burial 15A (m)



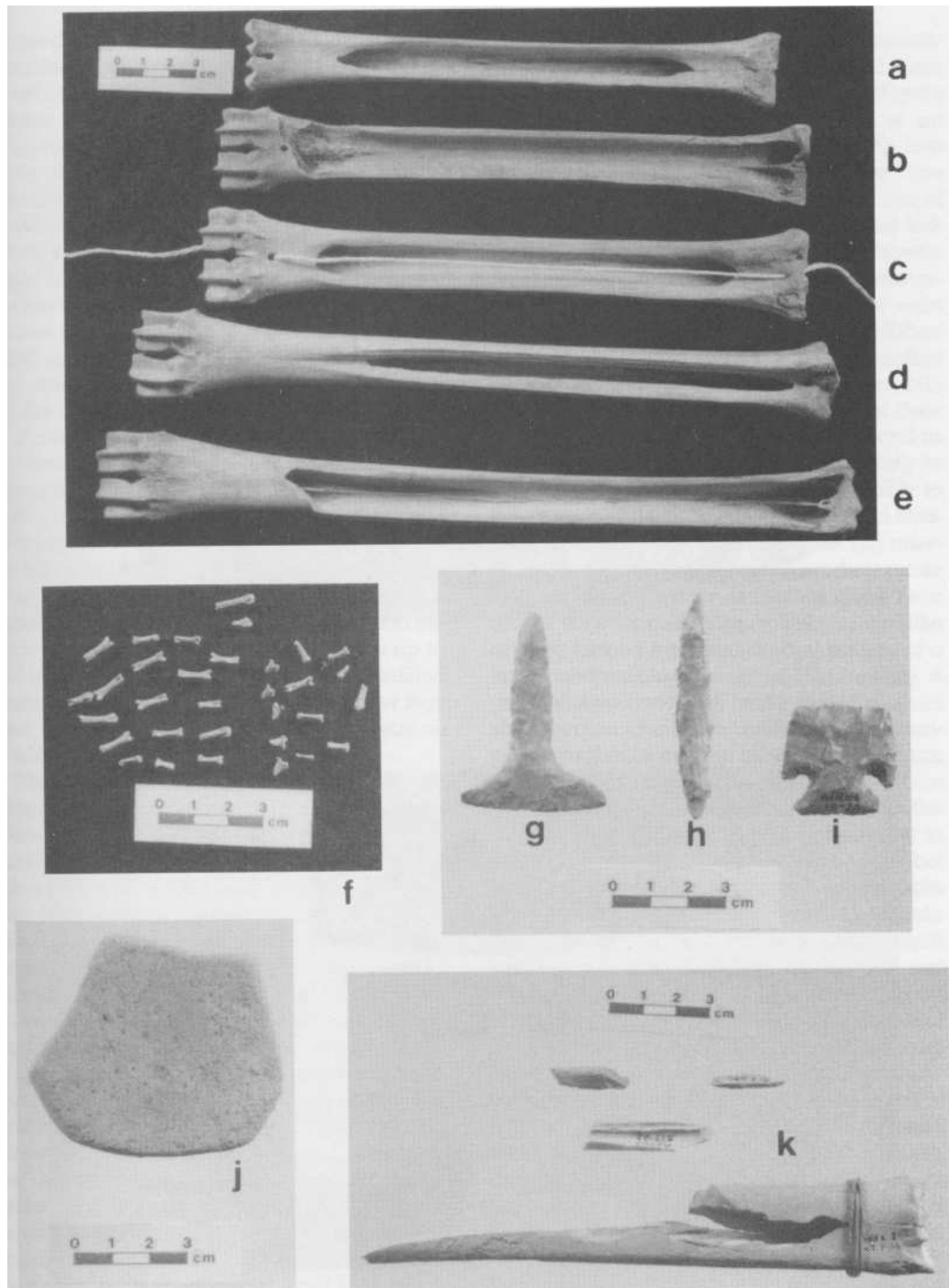


Figure 18. Hind Site Burial 15, Grave Inclusions

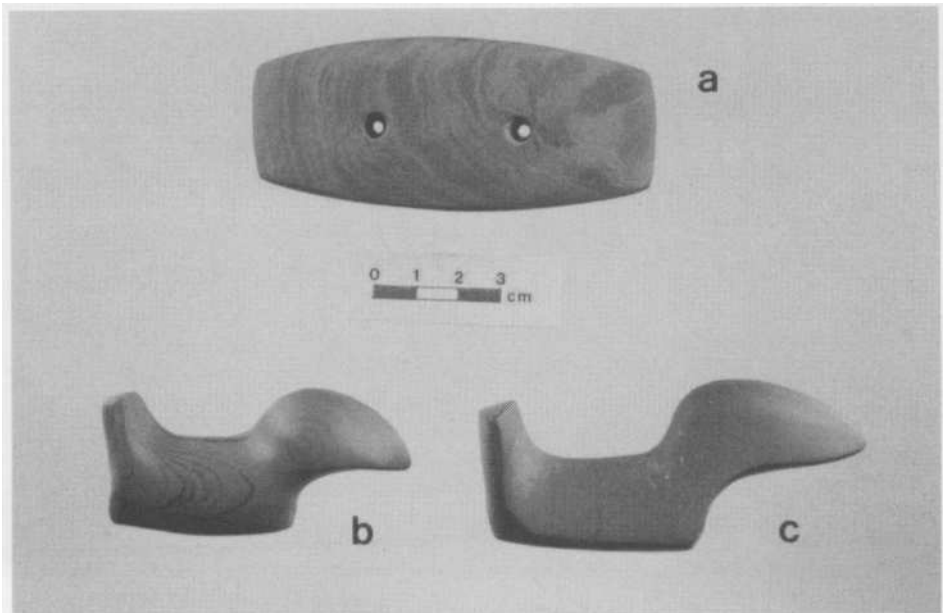
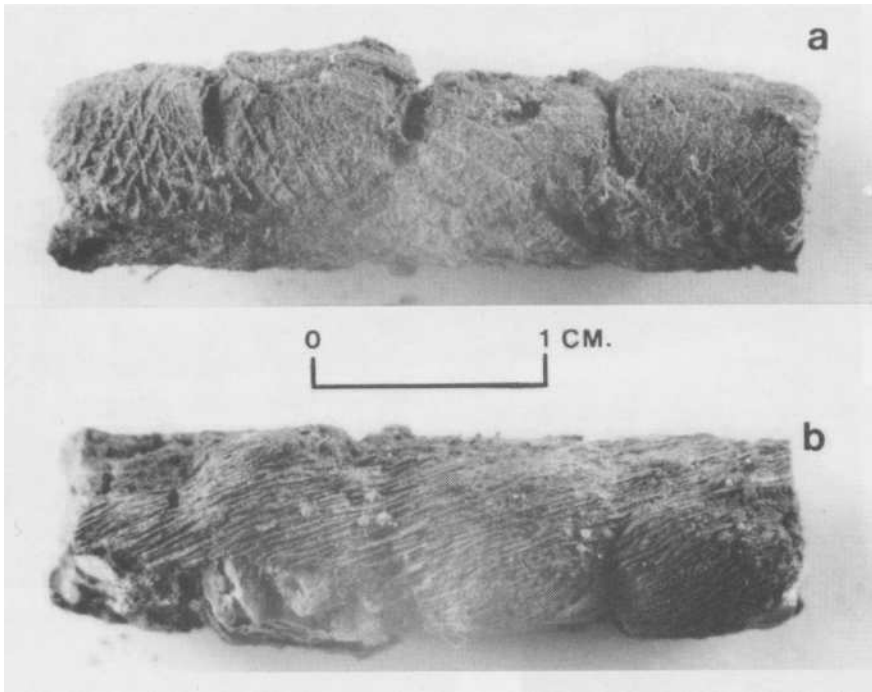


Figure 19. (Top) Hind Site Burial 15, Type 1 Copper Beads With Adherent Mineralized Textile (a) And Hair (b)  
Figure 20. (Bottom) Hind Site Burial 15A Grave Inclusions

shared a common grave. Burial 18, first encountered within and extending 6.5 cm beneath the plow zone, was the cremated re-mains of a mature female (Pfeiffer 1977:142) (Figure 21a). A small, calcined tip portion of a deer antler tine was found within this deposit. There was no evidence of the use of red ochre.

Along the southeastern edge of the grave shaft, some 24 cm below burial 18, the upper-most of some 63 red ochre-stained grave inclusions were encountered (Figure 21b). These goods followed the side of the grave shaft down to Burial 18A, where they spread out over the body in an area roughly bounded by the head, knees and pelvis (Figure 21c).

Burial 18A involved a late adolescent approximately 15 to 18 years of age. The sacral curvature suggests a male, while the cranium and innominate shape point to a female (Varney 1994:12). The body was positioned on its back, tilted slightly to the left, head to the east, facing south (Figure 62). The arms were flexed, with the hands at the shoulders, and the legs were flexed with the knees drawn up to the left side of the body (Figure 21c). An infilled animal burrow was noted along the upper legs and left elbow of this burial but there was no evidence of disturbance.

The grave goods include five drills, all with some grinding of the base (Figure 22f-i). There were five bifacial points (Figure 22a-e) of Onondaga chert. Five of the chert tools (Figure 22c,e,f,h,j) were made from quarried material, four from secondary deposit material (Figure 22b,d,g,i), and one that could not be determined (Figure 22a). Also recovered were 17 flakes, chips and exhausted core blocks, 11 of which show some evidence of re-touching and/or utilization as cutting or scraping tools (Figure 221), and only two of which are from quarried material (Figure 221, upper row, left and second from right); a ground and polished three-holed, rectanguloid, banded slate "gorget" having shallow notches along its longer sides and incised, cross-hatched triangles having their apices at the central hole on one face (Figures 22k, 60b); and three unmodified, high mica content, sandstone pebbles which glitter when turned in sunlight (Figure 22m).

Objects manufactured from animal bone included one modified right, and two modified left, grey fox (*Urocyon cinereoargenteus*) mandibles (Figure 23c,e,f), all showing slight polish and rounded edges suggestive of hand

wear or contact with a soft-walled container (Savage 1972); modified left and right male marten (*Martes americana*) mandibles (Figure 23a,d); the modified right mandible of an unidentified carnivore sp. (Figure 23b); four deer (*Odocoileus virginianus*) antler tine punches or flaking tools (Figure 24a-d), two of which (Figure 24a,c) formed the terminal fork of the same antler, and none of which showed definite evidence of use; two deer left metatarsal "awls" (Figure 24e,g) and one deer right metacarpal "awl" (Figure 240; a highly polished antler tine projectile point with its base drilled out to a depth of 28 mm for hafting (Figure 241); a fairly straight, 7.5 cm long portion of deer antler with its proximal end snapped off and its distal end bevelled by transverse cutting to remove the tine tip (Figure 24i), probably to produce a projectile point similar to that illustrated in Figure 241; a probable awl (tip missing, with adjacent portion much eroded) made from the left tibia of an immature black bear (*Ursus americanus*) (Figure 24j); an awl-like artifact, formed from the rib shaft portion of a large medium-sized mammal (Figure 24k); a use-polished bone awl, made from the distal shaft portion of a large medium-sized mammal; a probable awl (tip missing) made from the left fibula of a mammal; a slender, 16.3 cm long, use-polished, awl-like tool made from the complete right antler of a white-tailed deer in its first fall or winter (see Stothers and Abel 1993:Figure 24E, upper, for a comparable item); a probable awl, made from the left fibula of an unidentified mammal; six matching shaft fragments of a worked deer metapodial awl (Figure 24n); a portion of a deer metatarsal shaft showing no definite sign of artifactual modification (Figure 24m); an unmodified long bone fragment from an immature, medium-sized mammal; the unmodified proximal end of a small mammal long bone; 45 foot bones (consisting of 19 distal, 13 middle and 11 proximal phalanges, and two metapodials) from an unidentified mature carnivore (Figure 24h); a centimetre-sized fragment of fire-shattered rock; and nine freshwater mollusc valves. The latter are no longer available for analysis but an examination of a colour slide of these (Debbie Berg, personal communication 1995) resulted in the identification of five probable *Ligumia recta* (Figure 23i-m) and the right valve of a probable *Alasmidonta marginata* (Figure 23n). One right valve (Figure 23i) and

one left valve (Figure 23j) of the *Ligumia recta* had a cut and drilled perforation near their anterior pole. Three additional right valves of this species show use-wear (Figure 23k-m). Unfortunately, one complete (Figure 23h) and two fragmentary valves could not be identified.

Beneath, and in contact with, the flexed left arm of Burial 18A we discovered Burial 18B, the cremated remains of a probable female, 18 to 25 years of age (Susan Pfeiffer, personal communication 1977). With the possible exception of the unidentified carnivore foot bones listed with Burial 18A (Figure 24h), there were no grave inclusions that could be associated with this burial.

Burial 19 (Figures 2, 4e) was the in-flesh burial of a male, in his late thirties to mid-forties at the time of death, lying supine with the head to the north, facing east (Figure 62). Both arms were at the sides and the legs were flexed in a "kneeling" position (Figure 25). Noted during analysis was the possible remnant of a healed green stick fracture at the proximal head of the right radius, and some degenerative arthritis and dental abscesses (Varney 1994:12-13). Ossified costal cartilage was recovered from this burial.

Grave goods, all placed just behind the head, consisted of a pecked and ground stone axe (Figure 26a); four triangular bifacial points, three of Onondaga chert (Figure 26b,c,e) and one of Selkirk chert (Figure 26d), all of secondary deposit material; a small knife (?) and side scraper (Figure 26f,g) of secondary source Onondaga chert; a lump of pyrite (Figure 26h); an unmodified fawn metapodial; and the distal phalanx of an unidentified carnivore. There was no evidence of the use of red ochre with this burial.

Burial 20 (Figures 2, 4f) was the in-flesh burial of an adult male, approximately 35 years of age, lying slightly to the right side in a tightly flexed position. The head was at the eastern edge of the grave shaft, facing north and tilted downward. The knees were drawn up almost to the head, with the right arm tucked between the legs and the left hand and wrist lying across the left leg bones (Figures 27a, 62). Alveolar absorption had left little bony anchor-age for the posterior teeth and there were three periapical abscesses present. Arthritic changes were evident in the post-cranial bones, and the first thoracic vertebra had an ossified tendon (Varney 1994:13).

Found in association with this burial were two "cache blades" (Figure 28h,i) and one bifacial, corner-notched point (Figure 28d) of Selkirk chert which, based on its quality, is primary source material; one expanded-base and one T-shaped drill (Figure 28a,c), both with basal grinding, two bifacial preforms (Figure 28f,g) and one bifacial point (Figure 28e), all of primary source Onondaga chert; two bifacial points of secondary source Onondaga chert (Figure 28b,j); a fine-grained tabular sandstone abrader (Figure 29b); and a lump of greenish-grey limestone, abraded on the side illustrated (Figure 29a).

Animal bone included the modified rostral portion of a black bear (*Ursus americanus*) skull, similar to that found with Burial 15 (Figure 31); smoothed right metatarsal and left metacarpal of a white-tailed deer (*Odocoileus virginianus*), having the associated tarsal and carpal bones in their correct articular position (Figure 32); two copper-stained deer antler tine flaking tools, one with use scars on its tip and a base that has been cut and bevelled (Figure 33a), the other with a transversely cut base (Figure 33b); a deer antler tine projectile point with a 24 mm deep hafting socket drilled into the base (Figure 33c); two deer antler tine artifacts, one bluntly rounded and originally smoothed at the distal end and apparently snapped off at the proximal end (Figure 33e), the other cut and bevelled at both ends and use-smoothed (Figure 33f); a bone artifact of unknown use, ground to a point at one end and spatulate at the other (Figure 33g); a right lower beaver incisor cutting tool, having the distal tooth surface artificially flattened and the root end cut and rounded by grinding (Figure 33d); a fragment of another beaver incisor, showing no definite artifactual alteration; six copper-stained left and right fibulae from large, mature raccoons (*Procyon lotor*), all having the proximal end ground and rounded to a highly polished, sharp point, and the distal end perforated (Figure 34a-f); an additional three raccoon fibulae with similarly shaped proximal ends but with their distal end completely eroded away due to contact with an acidic grave inclusion (Figure 34g-i); three distal and three middle phalanges of a mature fisher (*Manes pennanti*) (Figure 34j); two distal, two middle and one proximal phalanges from an unidentified carnivore sp. (Figure 34l); a frog or toad sp. vertebra (Figure 34k); a reptile

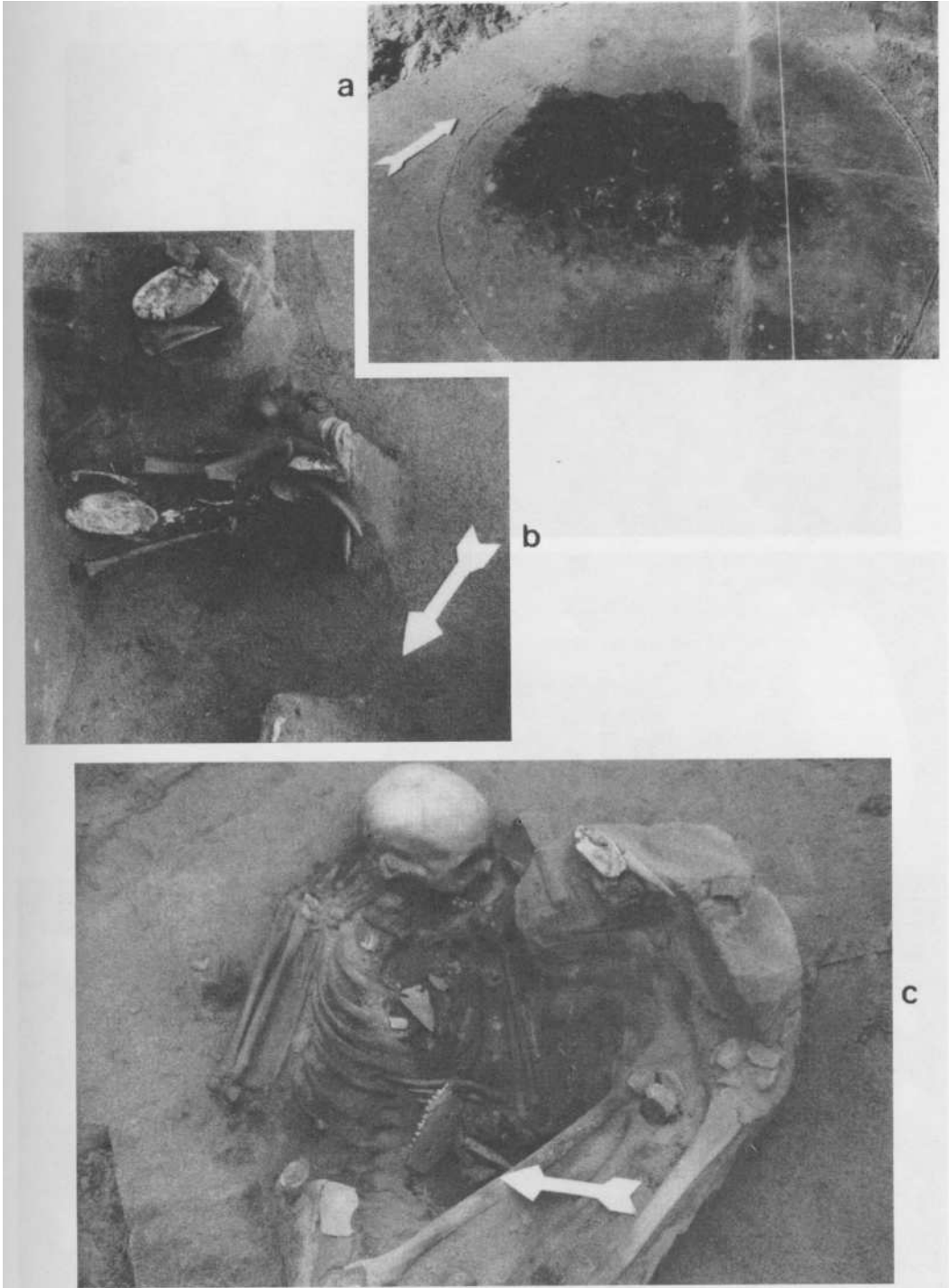


Figure 21. Hind Site Burials 18 (a) And 18A (b,c)

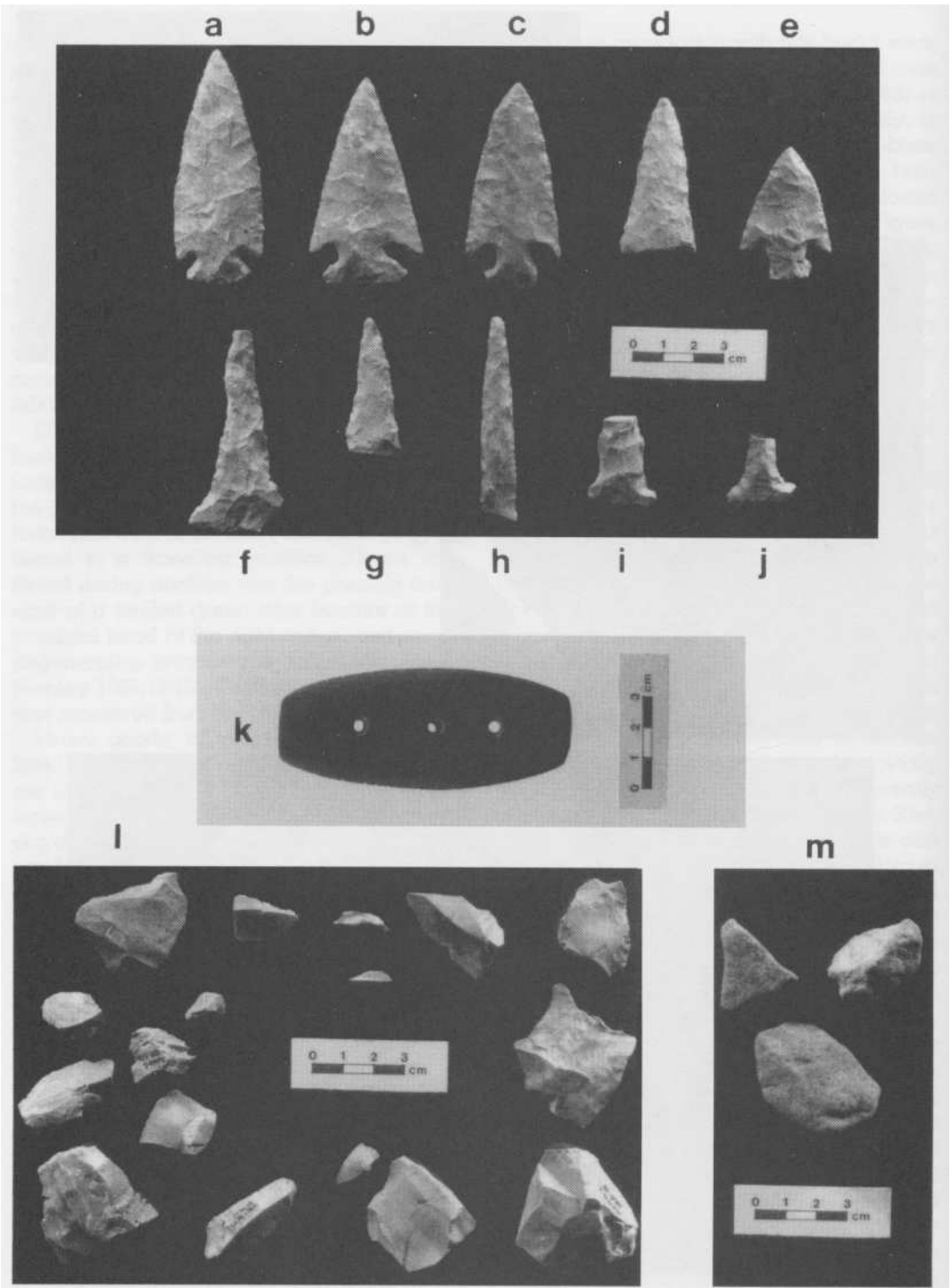


Figure 22. Hind Site Burial 18A Grave Inclusions

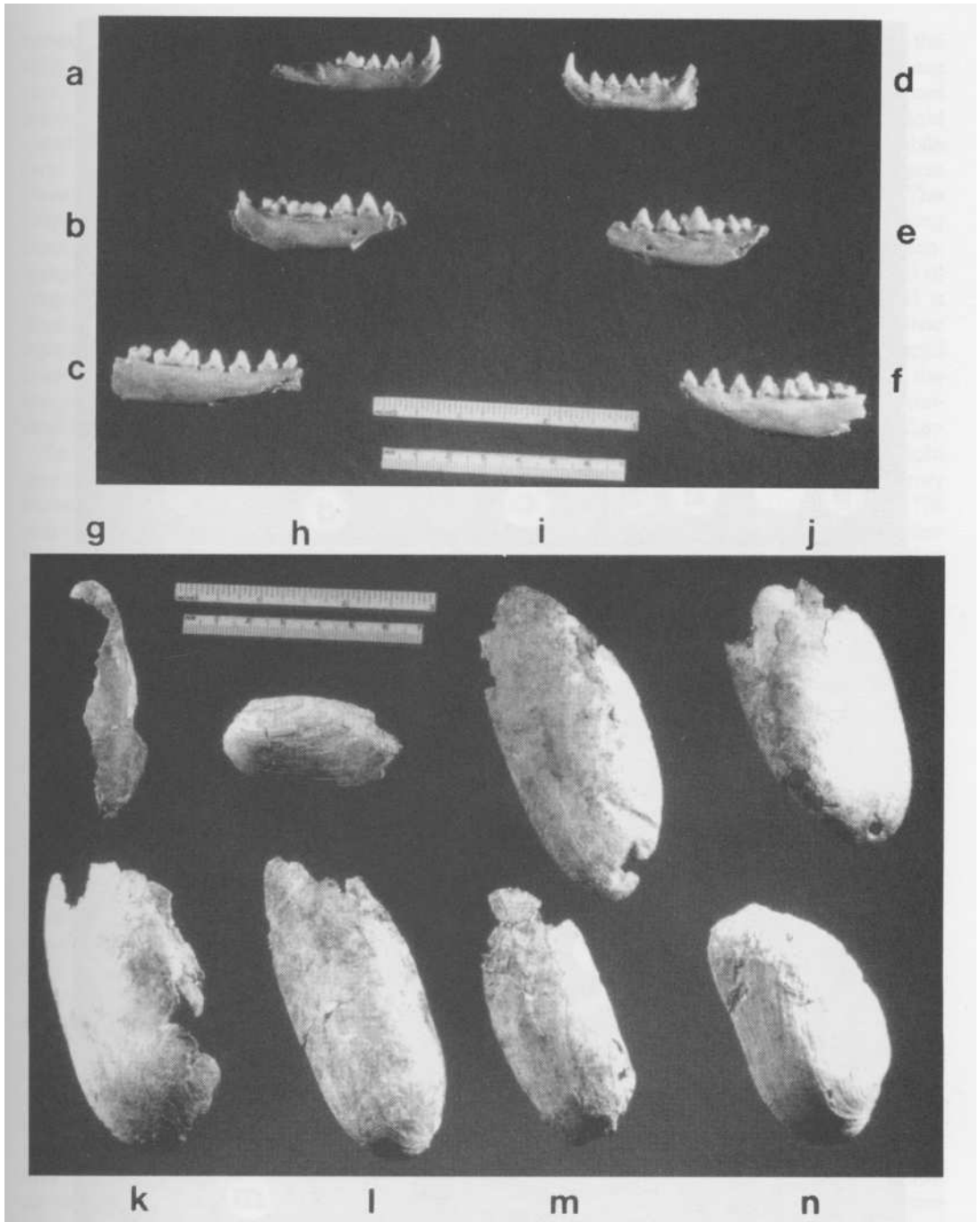


Figure 23. Hind Site Burial 18A Grave Inclusions

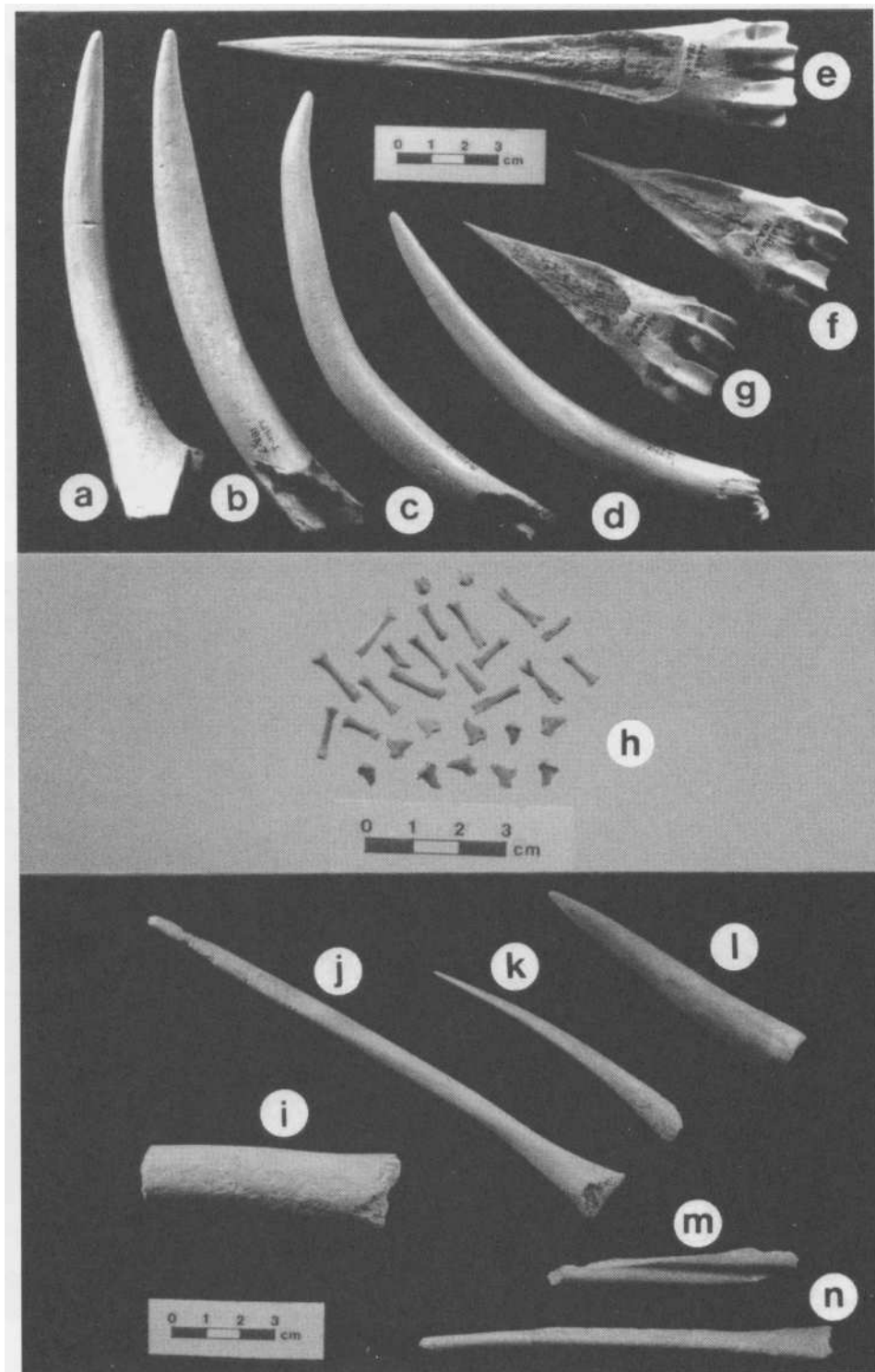


Figure 24. Hind Site Burial 18A Grave Inclusions



vertebra (probably from a large snake); the right valve of the freshwater mollusc *Ligumia recta* (Clarke and Berg 1959:52-53, 78-79), having its hinge area smoothed and a roughly circular perforation drilled and countersunk near its anterior pole; 283 marine shell disc beads, ranging in length from 1 to 7 mm and varying in diameter from 6 to 8 mm, with an associated, roughly circular, marine shell "gorget" (Figure 30). The latter specimen ranges from 9.7 to 10.3 cm in diameter and displays use-wear identical to ones recovered from Burials 11 and 15A. All these holes have been drilled from the concave surface and countersunk. The total length of the restrung shell disc beads is 73 cm.

Two overlapping ovoid areas of yellow and grey material covered the distal half of the left humerus of Burial 20, as well as parts of several of the grave inclusions, including fragmentary portions of three square cross section copper "awls" (Figure 34m-o). The reactive nature of these unidentified deposits caused the erosion of all bone and antler in direct contact with them (as indicated by arrows in Figures 27b, 33e,g, 34g-i).

Burials 22 and 23 (Figures 2, 4h, 35) are in-flesh burials sharing a common grave. The position of the bodies and grave goods poses a problem in interpretation. Burial 23, an adult male, approximately 45 to 55 years old, was lying prone at the bottom of the grave shaft, head to the northeast and tilted back sharply at the edge of the shaft (Figure 62). The arms were flexed, with both hands cupping a copper axe (Figure 36) slightly to the right of the sternum. This area had been liberally sprinkled with red ochre. A thin, finely ridged green material, adhering to one side and poll end of this axe, was identified by Dr. Michelle Heath, Department of Botany, University of Toronto, as wood xylem from a hardwood species, probably maple. The right leg of this individual was tightly flexed along the right side of the body and the left leg crossed beneath the pelvis at an anatomically-impossible angle, with the knee flexed and the foot below the pelvis. Burial 22, an adult male, approximately 25 to 30 years old, lay on its right side, flexed obliquely across Burial 23 in a more-or-less articulated position except for the skull and atlas vertebra. These were between the pelvis and southern edge of the grave shaft (Figure 35). The second, third and fourth cervical vertebrae were in

correct order but slightly out of line with the rest of the vertebral column at the northern edge of the grave shaft. The arms were flexed and twisted at awkward angles, and the right femur had been broken in several places while the bone was still relatively green (Susan Pfeiffer, personal communication 1974). The grave shaft itself showed considerable lensing and layering but the only disturbance discernable was an animal burrow which entered at the western edge of the shaft, dislodged a number of foot bones, cut across the pelvic area and passed along the right side of Burial 23. Beneath the feet of Burial 22 were found the perforated right valve of the freshwater mollusc *Ligumia recta* (Clarke and Berg 1959:52-53, 78-79) and use-polished left and right radii from a large *Canis* sp., probably grey wolf (*Canis lupus*) (Figure 37b). A total of 728 complete and six broken marine shell disc beads (Figure 37a) were found in association with Burial 22. Although some of these were still in strand position, many were scattered throughout the abdominal area. When restrung, they produced a necklace measuring 153 cm. Some 880 intact (and an estimated 40 broken) small, thin marine shell disc beads were found scattered about the head, neck and upper torso area of Burial 23 (Figure 38). When re-strung, the intact beads produced a strand length of 104 cm. By adding the estimated 40 broken beads, an original length of approximately 110 cm is obtained.

The teeth of Burial 23 had been worn down to the point where only root nubbins of the anterior teeth remained. This wear resulted in a long-standing dental abscess which had spread to the maxillary sinus and soft tissue. The postcranial bones reveal robust muscle markings and much degenerative arthritic change (Varney 1994:14-15).

Burial 24 (Figures 2, 4i) had been mostly destroyed by the removal and burning of a tree stump, with subsequent backfilling of the depression and burrowing by animals. All that remained were the eastern and western edges of the grave shaft, and a small deposit of cremated human bone, just beneath the plow zone at the northeastern edge of the shaft. Just one person, an adult of about thirty years of age and undetermined sex, seems to be represented by the recovered remains (Tamara Varney, personal communication 1993). There were no grave goods associated with this

deposit, and no evidence of the use of red ochre.

## THE SARTORI SITE (AaHp-35)

### Background

The Sartori site (Figure 1) is located on the south side of Leamington Ridge, overlooking Lake Erie, on Lot 5, Concession 1, Mersea Township, Essex County. The surface soil map for this county (prepared by the Department of Chemistry, Ontario Agricultural College, Guelph, in 1930) indicates the surface soil here is Berford loam, with small patches of Fox sandy loam. Berford loam is a brown loam overlying reddish brown loam and grey stratified gravel and sand. It was commercial exploitation of this underlying sand and gravel that led to the discovery and destruction of this site. Early historical records indicate that it was covered by an oak-dominated forest, with reports of poplar present as well (Findlay 1978b).

During the summer of 1974, approximately 10 red ochre burials were destroyed by gravel pit operations at this site, with at least 33 grave inclusions being recovered and retained by the pit owner's son, Douglas Sartori (Carey 1981). On February 14, 1975, an additional two graves were uncovered at this site. According to the pit foreman, Claudio Gaiarin, these graves were approximately 1.2 and 3.0 metres deep. The scattered skeletal remains were gathered and turned over to the local coroner, who in turn passed them to William Fox, then provincial archaeologist, Southwestern Ontario Region. A subsequent analysis (Pegg and Pfeiffer 1982) revealed that at least eight individuals were represented: two probable young adult males, one middle aged adult male, one middle-to-old adult female, two young adults of undetermined sex, one male of general adult age, and one juvenile, aged eight to twelve years: Four days later, the co-author (Wortner) visited the pit with Harry Bosveld, then director of the Fort Malden Museum, Amherstburg. Although the grave shafts were exposed in the cut face, a winter thaw was then underway and, with a 61 cm overhang of frozen soil above the graves, it was decided to wait a few days for a closer look. Before leaving, several ochre-stained grave inclusions which had dropped from the front end loader during the

exposure of these graves were recovered. Wortner and Bosveld also requested that the grave exposures be left as they were until they could examine them more closely. On returning to the site a week later, Mr. Bosveld discovered that about twelve metres of the pit edge where the graves were located had been dug away and there was nothing left to examine (an account of this entire episode can be found on page 10 of the Wednesday, February 26, 1975, issue of the London Free Press).

Although this site has been destroyed and the present whereabouts of the late Mr. Douglas Sartori's collection of artifacts is not known, the material recovered by Bosveld and Wortner, the photographs taken by Bosveld and Carey, and the osteological analysis by Pegg and Pfeiffer, provide enough evidence to support the designation of this gravel pit as a "Glacial Kame" burial site.

### Artifacts

Three colour slides, taken by Bosveld of the missing Sartori collection, show the concave and convex surfaces of a red ochre-stained marine shell sandal-sole "gorget", measuring approximately 29.2 cm long and 8.4 cm wide, with three holes drilled along the long axis (Figure 41a). Under magnification, the copper stained concave surface shows a well-defined wear pattern between the two holes closest to the "toe" end of the specimen. On the convex surface of this specimen, the wear pattern on the "toe" end hole is towards the "toe", the wear on the middle hole is towards the "heel". No definite wear pattern can be observed on the "heel" end hole on either surface.

The Carey photographs show, in addition to the sandal-sole "gorget", twenty nine discoidal and short tubular marine shell beads (Figure 40c), a two-holed rectanguloid marine shell "gorget" (Figure 40b), similar to the "bar" type reported from Ohio (Converse 1980), a chert bifacial "cache blade" (Figure 40a), and a copper axe with a flared bit (Figure 40d). Also included is a view of a cremation deposit, encased in red ochre, as it was exposed in the pit face by a front end loader during sand and gravel removal.

The artifacts salvaged by Bosveld and Wortner consist of 25 marine shell beads, ranging from 2 to 7 mm in length and 5.5 to 9 mm in diameter (Figure 39f), with several

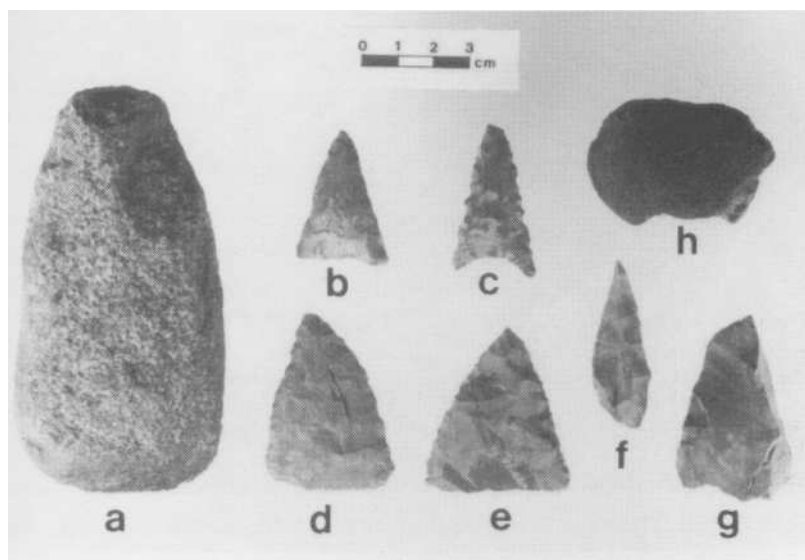


Figure 25. (Top) Hind Site Burial 19  
Figure 26. (Bottom) Hind Site Burial 19 Grave Inclusions

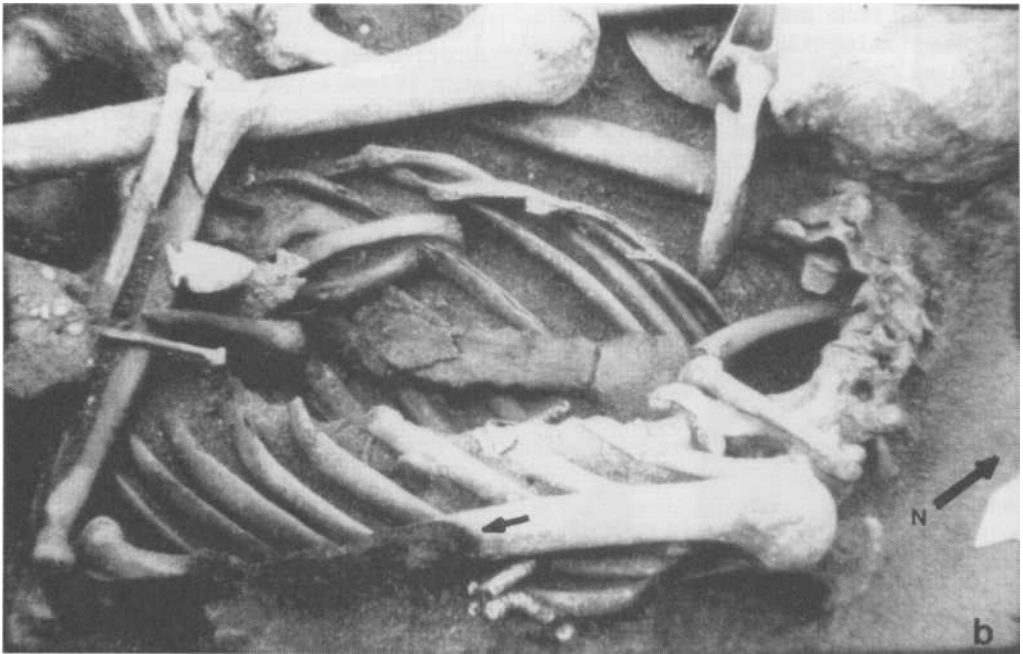


Figure 27. Hind Site Burial 20 (a) And Detail Of Reactively Eroded Area Of Left Humerus (b, Short Arrow)

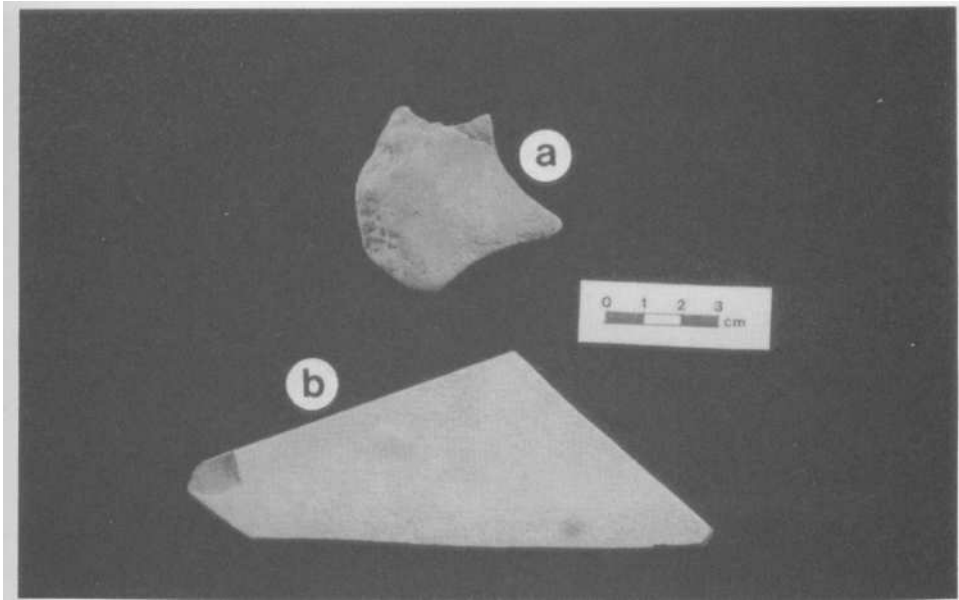
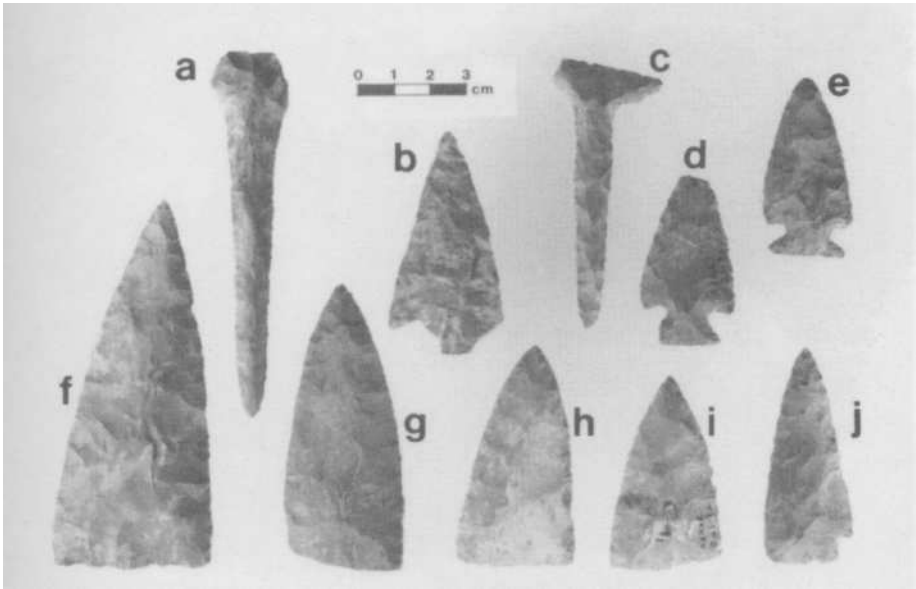


Figure 28. (Top) Hind Site Burial 20, Flaked Chert Inclusions  
Figure 29. (Bottom) Hind Site Burial 20, Ground Stone Inclusions

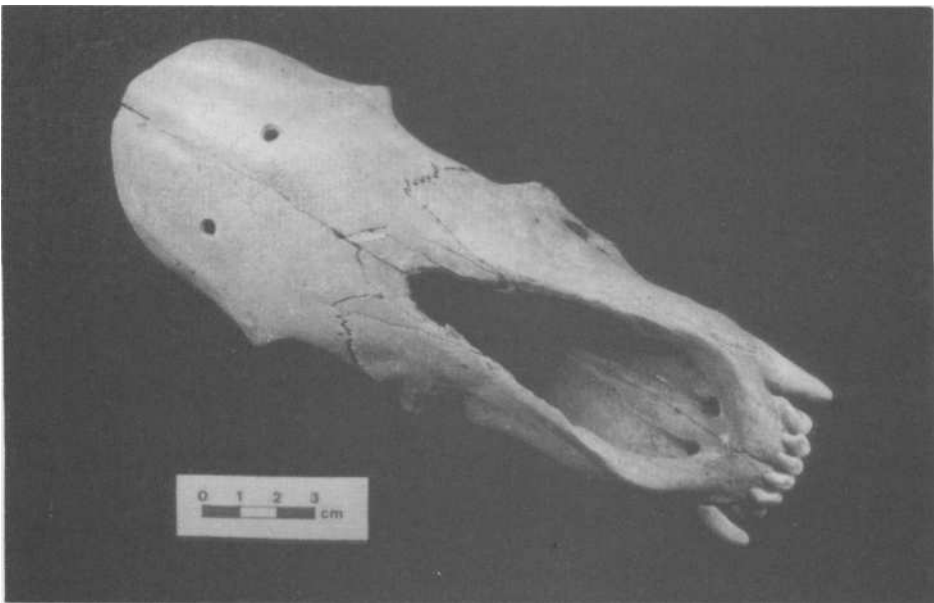
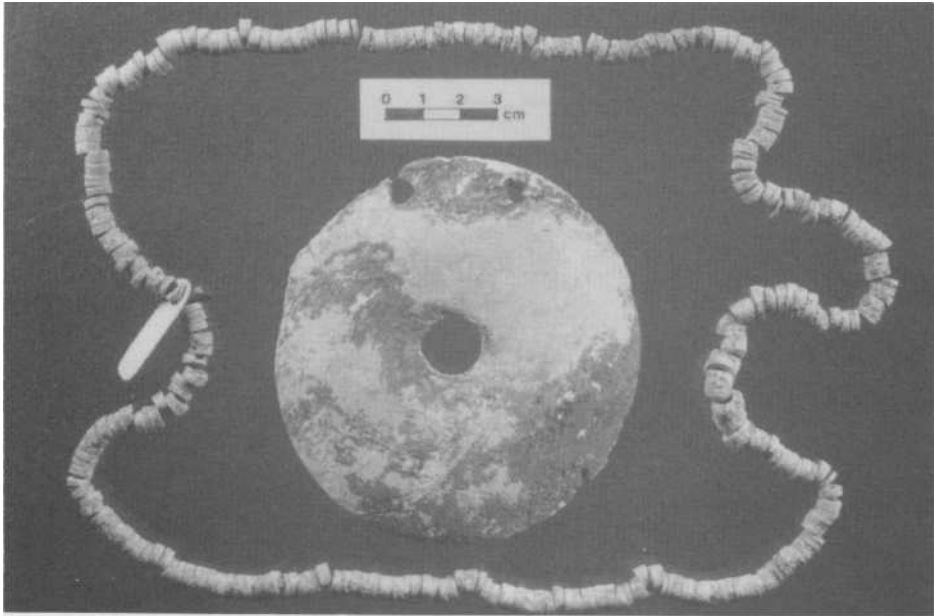


Figure 30. (Top) Hind Site Burial 20, Marine Shell Artifacts Figure 31. (Bottom) Hind Site Burial 20, Bear Skull "Mask"

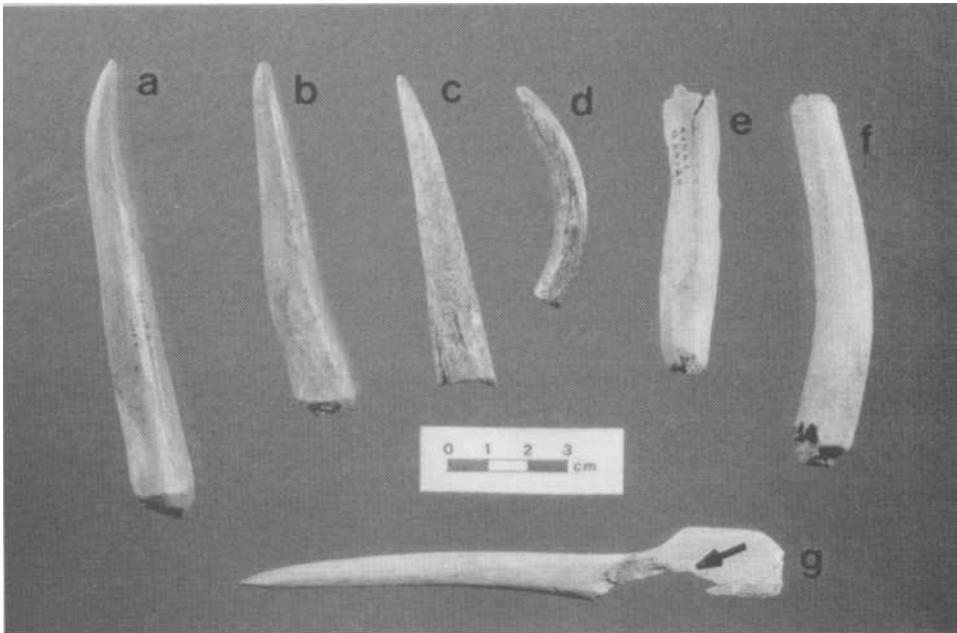
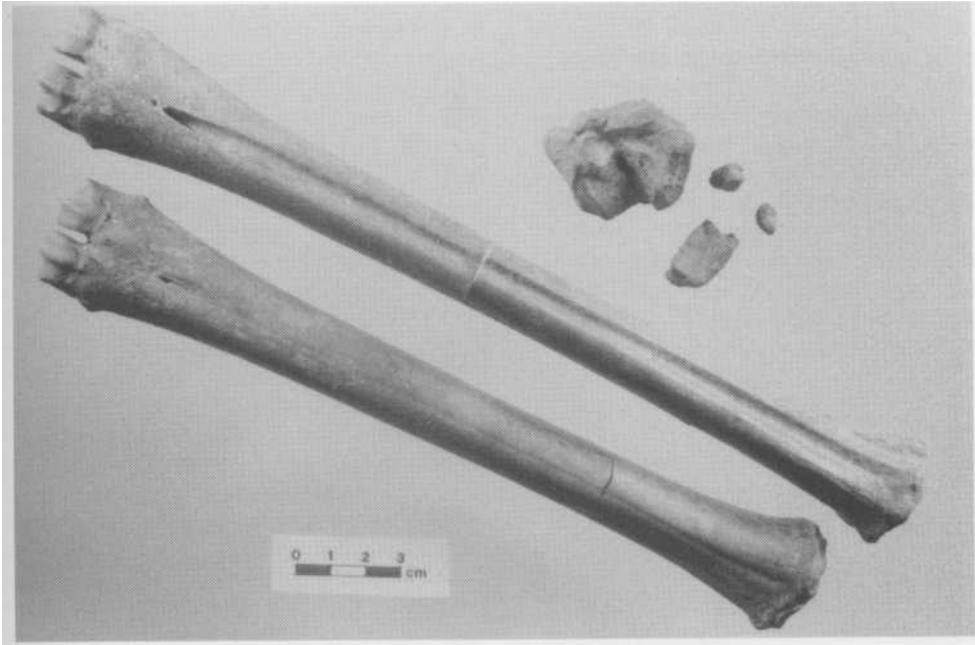


Figure 32. (Top) Hind Site Burial 20, Polished Deer Metapodials

Figure 33. (Bottom) Hind Site Burial 20, Bone And Antler Artifacts. Arrow Points To Reactively Eroded Area On Spatulate Tool

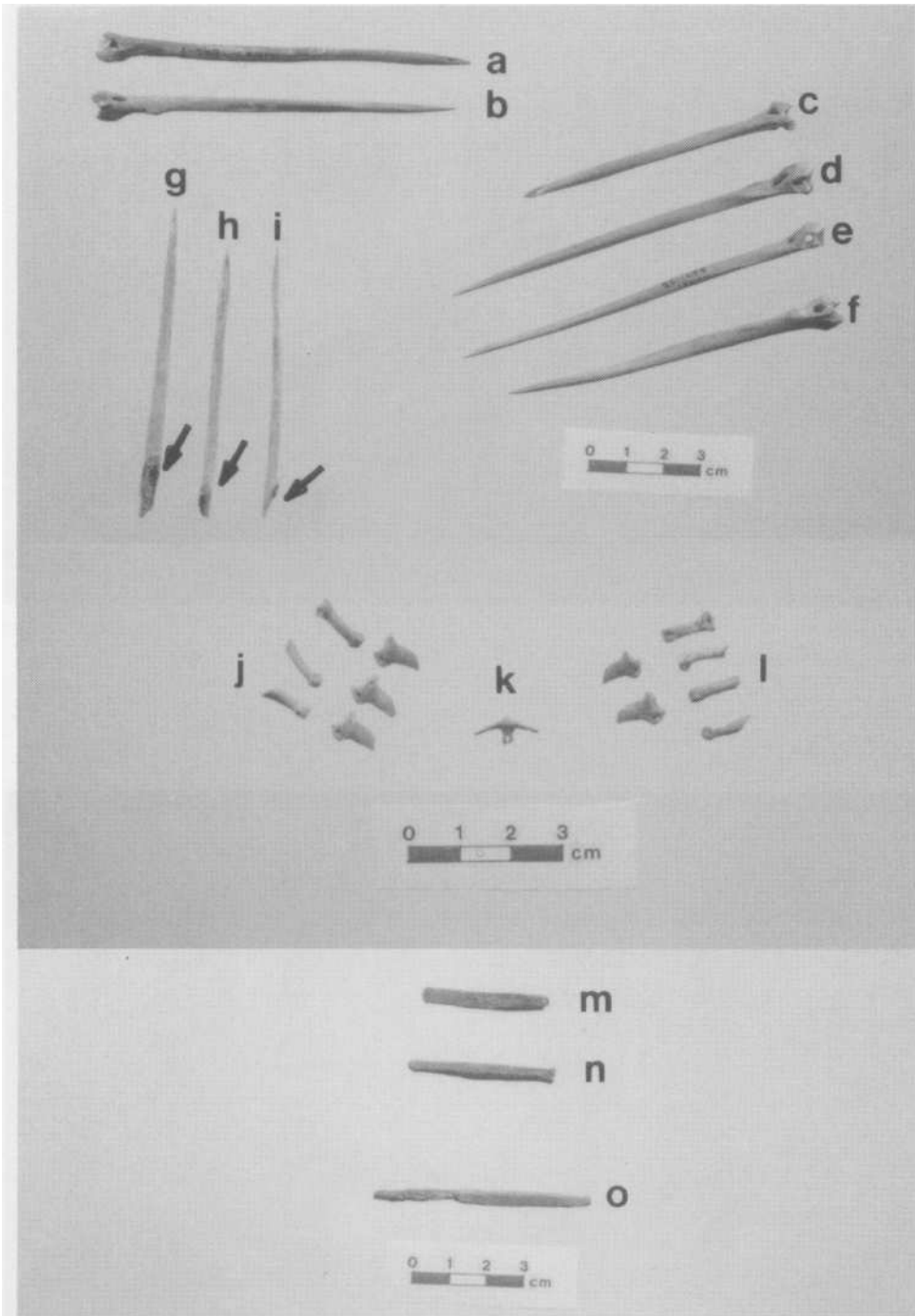


Figure 34. Hind Site Burial 20, Bone And Copper Artifacts. Arrows Point To Reactively Eroded Areas On Raccoon Fibulae "Needles" (g-i)



stained by copper salts; six fragments from a large cut, drilled and edge-notched marine shell artifact (Figure 39h) which may have served as a container; a beaver incisor (Figure 39c); a deer antler tine flaking tool, showing use wear at the tip and evidence of having been snapped rather than cut from the rack (Figure 39e); a cut and edge-bevelled section of deer antler, 9.1 cm in length, deeply eroded on one side for two thirds of this length (Figure 39d); the tip portion of a polished bone awl, having its shaft eroded in the same manner as the worked section of deer antler (Figure 39b); a deer metapodial awl, eroded at the tip end and part of the epiphysis (Figure 39a), and an 8 cm long, cigar-shaped limestone pipe, having a drilled and smoothed bore 1.5 cm in diameter at the larger end and .9 cm in diameter at the smaller end (Figure 39g). Like the bone and antler specimens noted above, much of the polished external surface of this pipe has been eroded away by contact with some acidic substance.

## THE RIKLEY SITE (AcHo-3)

### *Background*

The Rikley site (Figure 1), named after the property owner at the time of its discovery, is located on Lot 15, Concession 12, Dover Town-ship, Kent County. It lies on a 1.2 metre high sandy ridge which runs eastward from the Rikley barn. The surface soil of the ridge is Berrien sandy loam, overlying Brookstone clay loam. Rankin Creek flows past the eastern edge of this ridge and empties into Mitchell's Bay, 1.5 km to the west. Within living memory an extinct smaller stream, Chicken Creek, meandered past the southern edge of the ridge. This site lies well within the Carolinian Biotic Zone and early historic records indicate that it was within a beech-maple forest, with elm trees present (Findlay 1978a).

Historically, this site was first settled in 1848. When Mr. Irad Rikley took over the farm from his mother in 1939, the area east of the barn-yard was an orchard. In 1964 it was placed under cultivation and continues to be so at the time of writing. In 1972 a row of walnut trees, just south of Mr. Rikley's property line, was cut down, with subsequent severe wind erosion of the exposed sandy soil of the ridge.

The first recorded investigation of this site

was in 1969, when Mr. Murray Tuck, of Grande Pointe, began surface collecting from the ridge, east of the Rikley barn. In 1972 he laid out a ten-foot (3.5 m) grid, measuring 500 feet (152.4 m) east and 80 feet (24.4 m) south of a datum point 62 inches (1.57 m) out from the northeast corner of the Rikley barn. During 1972 and 1973, Mr. Tuck excavated some 108 square metres within this grid. In 1974, at Mr. Tuck's suggestion, Professor Leonard Kroon, University of Windsor, carried out an archaeological field school at this site, excavating an additional 207 square metres within Tuck's grid. He determined that this was a multi-component site with prehistoric elements ranging from Late Archaic to Late Woodland (Kroon 1975).

### *Burials and Artifacts*

One of the features exposed during the 1974 excavation was a grave shaft at the extreme eastern edge of the excavation grid (unit C50), described by Kroon as ovate in outline and containing six cremation deposits. Because of wind erosion, these deposits lay only 9.5 to 12 inches (24 to 30.5 cm) beneath the surface of the ridge and had been partially disturbed by plow action. Unfortunately, before this feature could be fully exposed and documented, a jurisdictional dispute arose and several of the grave goods were removed prior to documentation. As a result, the excavation was terminated and the grave backfilled (Kroon 1975). Of importance here was the documentation of two tubular limestone pipes with shaped pebble inserts, both smoke blackened (Figure 41b), and a roughly made, full bodied, nubbin-eyed birdstone of green slate (present whereabouts unknown). The significance of the presence of these artifacts in the same grave is dealt with in the "Grave Goods" subsection of the "Discussion" section (*infra*).

## THE CARON 2 SITE (AcHo-2)

### *Background*

The Caron 1 and Caron 2 sites (Figure 1), now almost totally destroyed by the demolition of the Caron barn, sand removal and the erection of a large equipment shed, were located on Lot 8, Concession 9, Dover Town-ship, Kent County, on a ridge of Berrien sandy

loam overlying Clyde loam. Early historical records indicate an open meadow covered the site (Findlay 1978a). For a number of years prior to 1968 both the Caron sites were known to, and worked over by, a number of local collectors, and were being monitored by the co-author.

In April of 1968, Wortner noticed that the sod had been stripped from part of the ridge, preparatory to sand removal, exposing several fire pits and burials. He notified Harry Bosveld, at that time a curatorial assistant at the Hiram Walker Historical Museum, Windsor, who quickly completed arrangements with the owner and tenant, Mr. Robert Caron, to carry out a salvage excavation in the threatened area. A crew of students from the University of Windsor, under the supervision of Father John Lee, excavated the immediately threatened occupational area east of the barn (designated Caron 1). Bosveld, assisted by Wortner, concentrated on one of the burial areas, a plowed sand knoll southwest of the barn (designated Caron 2) where, in an area of about 18.3 metres in diameter, the remains of an estimated twelve red ochre burials were evident on the wind-eroded sandy surface. Due to the disturbance and mixing of these burials by farm equipment, wind and, to some extent, by collectors, an accurate number could not be ascertained in the time available.

#### *Burials and Artifacts*

In the Caron 2 area, a small copper celt, some Vinette 1 pottery, several Type 1 copper beads (Figure 41d), and a circular marine shell "gorget" (Figure 41c) were surface collected (Bosveld 1968). In addition, two copper axes (Figure 41e) were found on a small sand knoll, some 30 m west of Bosveld's Burial 1 (*infra*), in association with the plow-disturbed burial of a young juvenile. The circular shell "gorget" has an unusual treatment for this type of artifact. Two pairs of holes have been drilled between the suspension holes and central hole at such an angle as to intersect before penetrating the opposite surface. The bridge between the upper pair has been worn through, suggesting the need for the lower pair. Due to extensive weathering of this artifact, there is no longer a definite concave or convex surface, although there is a faint wear pattern discernable between the suspension holes on the opposite

surface to that carrying the intersecting holes, and a slightly more pronounced wear pattern diagonally outward towards the periphery on the side with the intersecting holes.

In the area in which the copper beads were found, Bosveld discovered, about 17.8 cm beneath the surface, the *in situ* portion of a disturbed red ochre burial. He designated this Burial 1. When fully exposed, this was revealed to be the flexed, inflesh burial of a juvenile, about four years of age, lying supine, with head to the east (but too disturbed and fragmented to determine which way it faced), arms apparently slightly flexed at the sides, and legs flexed loosely to the left side of the body. In the head area, a "clayish mass" of powdered red ochre was found beneath a mass of broken bone, including the left anterior portion of the mandible. Underlying the ochre mass was a layer of bark-like organic material which ranged from 1.6 to 3.2 mm in thickness. Post-cranially, the powdered red ochre gave way to brightly ochre-stained sand, fading gradually towards the feet, though pure red ochre was found *in situ* beneath the rib cage (Bosveld 1968:4).

The only grave inclusions directly associated with this burial, other than the red ochre, were 43 Type 1 copper beads. Nine of these were found at the base of the plow zone, on top of the shattered bone in the head area. The rest were recovered from the plow zone above or adjacent to Burial 1. These beads ranged from 3.8 mm to 22.9 mm in length, and from 6.4 to 15.0 mm in diameter. Traces of hair-like adhesions were noticed on the oxidized surfaces of several of these beads, and on one bead this pattern seemed to be associated with what Bosveld believed could be a closely spaced line of stitches (Bosveld 1968:4).

A second red ochre burial, located some 5.3 m northwest of Burial 1, was given the designation Burial 2. Due to time constraints, however, its position was merely plotted on the site plan and left for future excavation.

## THE MEREDITH-GOODALL SITE (AdHm-49)

### Background

This site (Figure 1), situated on a Berrien sand knoll of about 45 m in overall diameter and 2.5 m in height, is located on part of Lots 5



Figure 35. (Top) Hind Site Burials 22 And 23 Exposed in situ  
Figure 36. (Bottom) Hind Site Burial 23 Copper Axe With Adhering Wood Xylem

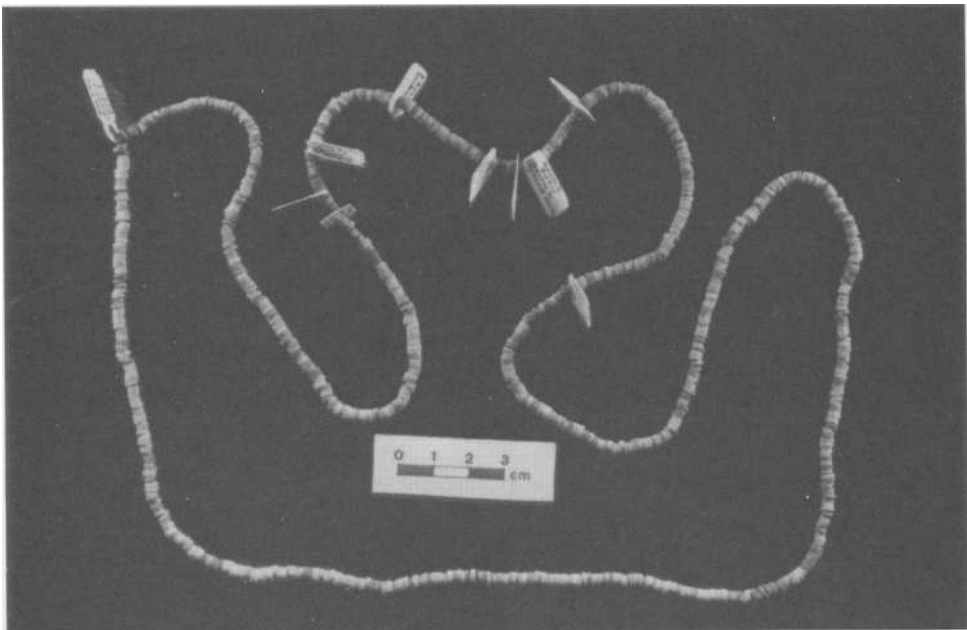
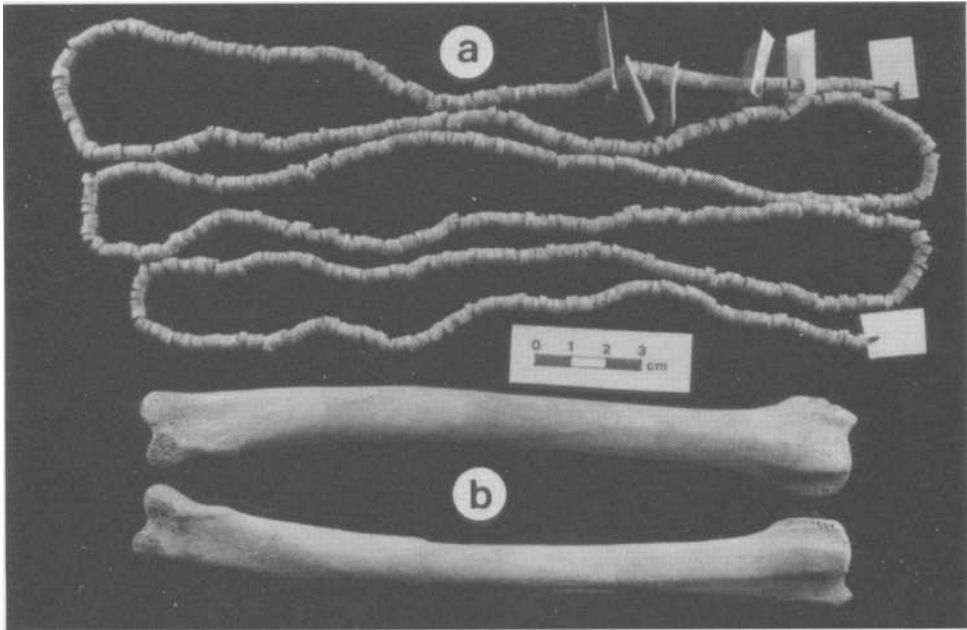


Figure 37. (Top) Hind Site Burial 22, Marine Shell Beads And Use-Polished Canis Radii  
Figure 38. (Bottom) Hind Site Burial 23, Marine Shell Beads

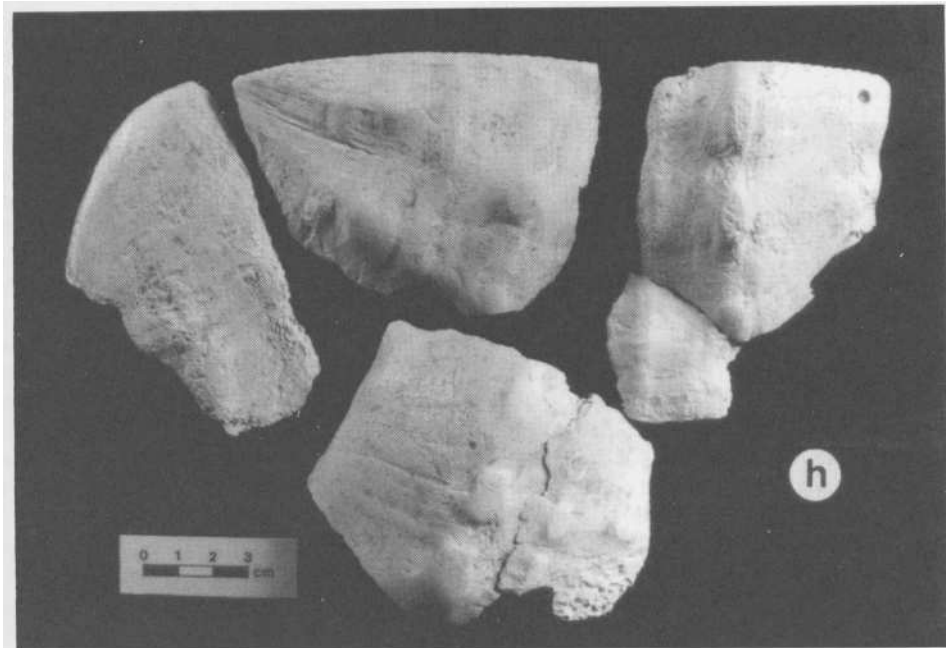
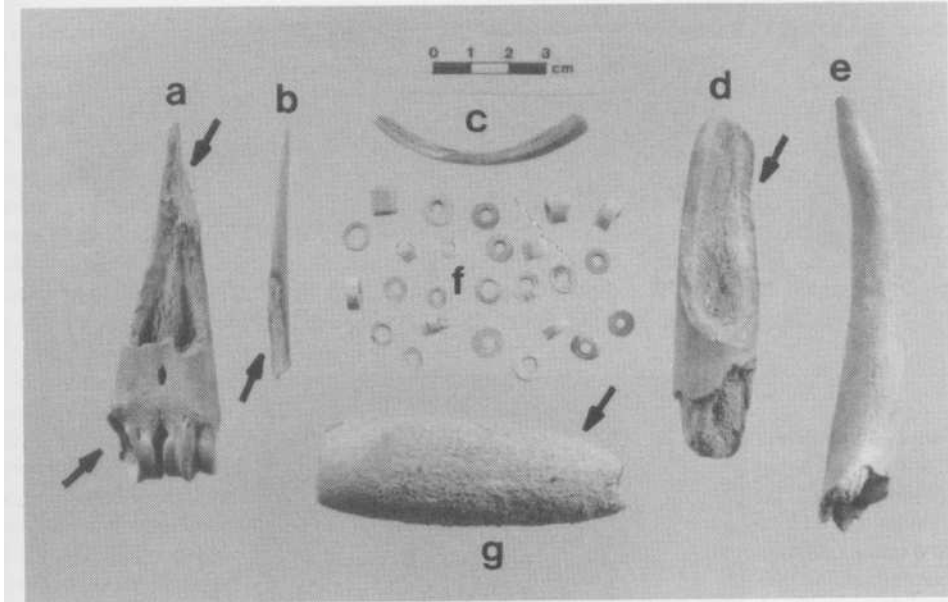


Figure 39. Sartori Site, Recovered Grave Inclusions. Arrows Point To Reactively Eroded Areas

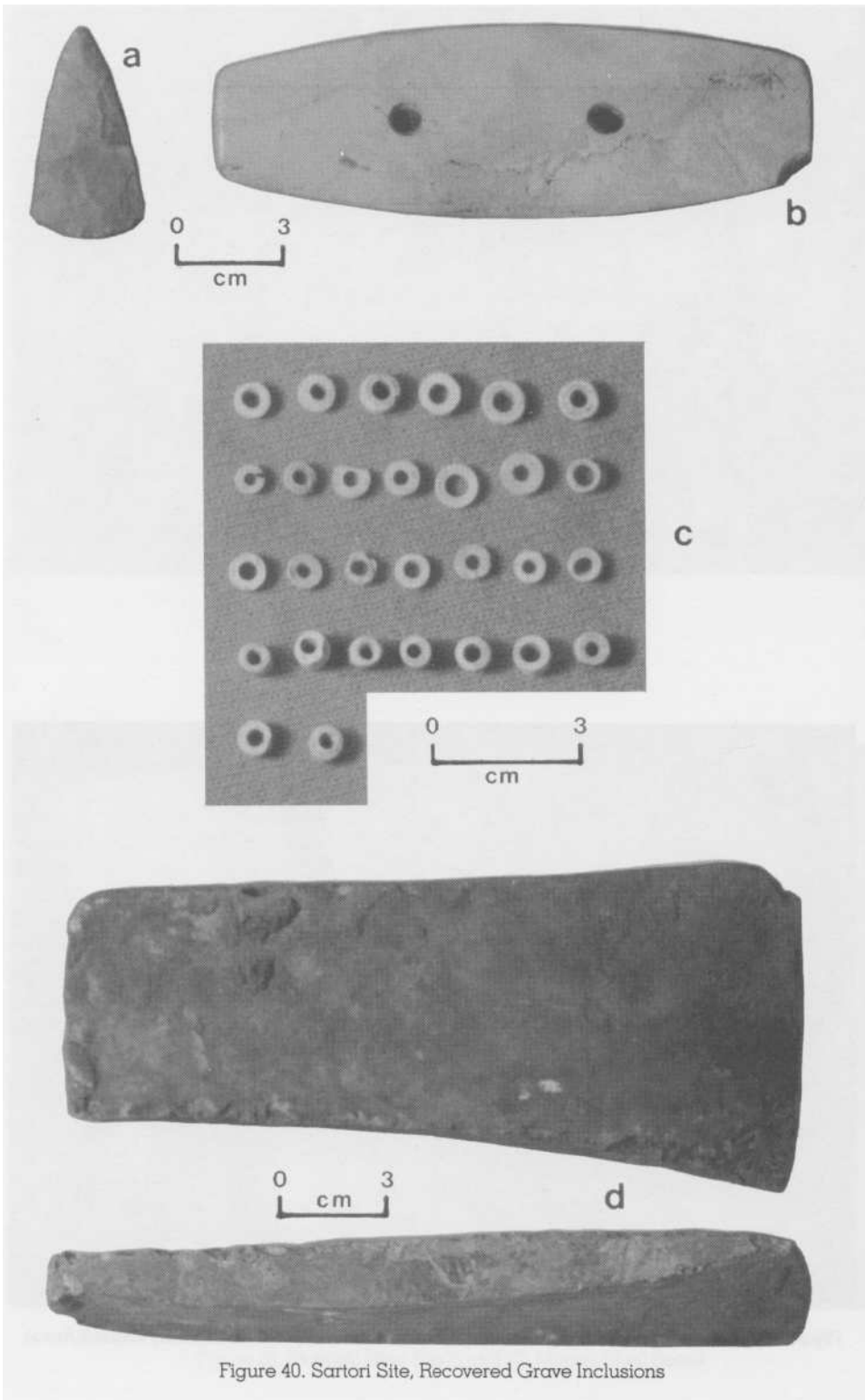


Figure 40. Sartori Site, Recovered Grave Inclusions

and 6, Front Concession, Howard Township, Kent County. The neutral to alkaline Thames clay loam underlying the acidic Berrien sand of this site (Ontario Surface Soil Survey Map, 1936) was laid down during the glacial lakes Warren and Whittlesey stages. The knoll was a detached portion of the terminal end of the old Thames River delta, formed when the mouth of this river emptied into these lakes a few kilo-metres east of the site. At present, the Thames River flows some 300 m north of the site and is fed by the Julien Drain, a modern reworking of the old Ardwell Creek, which passes some 60 m south of the site. Early land survey records (Findlay 1978a) indicate the site was part of a beech/maple dominated forest, changing to an oak-dominated forest just north of the site.

The site itself was discovered in the spring of 1964 by Mr. Glen Meredith, a local school teacher, who at that time was leasing the house on this property from Mr. Ted Goodall. Aware that Harry Bosveld and Neil Coppieters were excavating a Woodland habitation site nearby, Mr. Meredith showed them the material he had surface collected from the site. Noting red ochre and copper staining on some of the human bone Mr. Meredith had recovered, they immediately carried out an exhaustive surface survey of the sand knoll and surrounding area. This resulted in the recovery of additional ochre and copper-stained human bone (some cremated), portions of perforated marine shell "gorgets", copper beads, a worked antler tine, Middle and Late Woodland pottery, and a considerable amount of animal bone, some of which was attributed to domestic animals.

By late August of that year Bosveld and Coppieters had completed arrangements with Mr. Goodall and began an exploratory excavation of the knoll. A permanent datum point was established and a five-foot (1.75 m) grid laid out over the knoll. Using a quarter inch (6 mm) mesh screen, they sifted much of the plow disturbed topsoil near the top of the knoll. Features encountered at the base of the plow zone were then excavated by means of trowel and brush. This work (Coppieters and Bosveld 1964; Meredith 1970) uncovered four disturbed red ochre burials which were clearly not related to the Kreiger (Young phase), Late Woodland or Historic features also encountered on this site. As well, portions of several artifacts normally associated with "Glacial Kame" burials

were recovered within the plow zone above or near these burials.

Neil Coppieters is now deceased, but the writers have been fortunate in obtaining most of his Meredith-Goodall site notes and to have traced down and obtained access to nearly all the recovered material, now located at the Chatham-Kent Museum and three private collections. This enabled us to temporarily re-assemble some of the broken artifacts for analyses and comparisons.

#### *Burials and Artifacts*

Burial 1 was almost totally destroyed by a modern pit, dug to dispose of a farm animal. A preliminary examination of the recovered human bones indicates that at least three individuals are represented: two mature adults and a juvenile of about two years of age. One of the adults was a female. The sex of the other has not yet been determined (Tamara Varney, personal communication 1993). Although a reddish-grey chert end scraper was recovered from the plow zone above this burial and several cord-marked potsherds, small fire-stones and unmodified chert chips were found in the intrusive modern pit, red ochre is the only grave inclusion that could be assigned to this burial.

Burial 2 was a red ochre-stained cremation deposit found near the base of the plow zone, 16.5 cm below the surface of the knoll. Detached portions within the plow zone indicate that cultivation had cut into and scattered the upper portion of this burial. The outline of the burial at the base of the plow zone was roughly ovate, measuring 67.5 cm in a north-south line and 45 cm east to west. Its maximum depth was 10 cm below the plow zone. Except for the red ochre, the only grave inclusion found with this deposit was a single unmodified chert chip. A preliminary examination of the recovered remains indicates that at least two adults and one juvenile are represented (Tamara Varney, personal communication 1993).

Burial 3 was an in-flesh burial of a female, 28 to 30 years of age (Tamara Varney, personal communication 1993), lying on her left side, head to the south, facing west. The left forearm extended obliquely up the west wall of the grave shaft, with the hand bones and distal ends of the radius and ulna missing - sheared off by plow action. The legs were flexed at the

knees with the feet touching the northeast edge of the grave shaft. The head was slightly elevated at the southern edge of the shaft and rested on a 1.2 cm layer of black, bark-like organic material. Coppieters' field notes indicate two samples of this material were wrapped in aluminum foil and retained for possible radiocarbon dating but we were unable to locate these. While the lower portion of this skeleton was in a good state of preservation, considerable decay was noted on the right scapula, clavicle, temporal and parietal bones, as well as the left forearm. In addition, the mandible had been broken into three pieces, although the condyles and coronoid processes were still articulated. The cranium had been slightly crushed by the weight of farm equipment passing over it.

A total of 38 Type 1 copper beads were recovered in strand position from the neck area and beneath the skull of this burial. Ten of those lying beneath the skull were in two parallel rows of four and six beads. The excavators felt that this was due to looping of a single strand as it came in contact with the ground when the body was laid to rest. Two additional Type 1 copper beads and a copper-stained circular marine shell "gorget" were found together slightly separated from the in-strand beads. This shell "gorget" (Figure 42a), some 4.5 cm in diameter, had a 3 mm central hole drilled in it. Near the periphery, on opposite sides, two pairs of holes had been drilled at such an angle as to intersect before penetrating the disk, while leaving a narrow bridge between them. The bridge between one set of these paired holes had worn through with use and a 3 mm hole had then been drilled through the disk at that point as a repair solution. The bridge on the other pair had been broken during or shortly after interment since the broken edges are covered in red ochre. Three additional copper beads, identical in manufacture to the Type 1 beads but with the length of the Type 2 category, were found lying on the facial bones. A three-ply stringing material, preserved within one of the typical Type 1 copper beads, has been identified as some species of herbaceous or woody material, possibly red cedar or rattlesnake master (Kathryn lakes, personal communication 1993). As with the Hind Burial 1 specimen, this cord-age had been Z-spun and S-twisted.

Burial 4 was that of a juvenile of as yet unde-

termined age and sex. This interment had been previously dug by persons unknown. The skeleton, now incomplete, had been shattered and scattered throughout the disturbance. Red ochre had been used during interment but the only grave inclusion recovered was a fragment of a circular marine shell pendant with two suspension holes drilled in it.

Screened from the plow zone above and near these burials were fragments of several marine shell artifacts. These include the only incised sandal-sole "gorget" recovered to date in Ontario (Figures 42g, 60a), showing use wear identical to the Sartori specimen; two circular three-holed "gorgets" (Figure 42b,c), having the same use-wear as previously de-scribed; a trianguloid pendant with a single suspension hole drilled near the apex and notching along the upper half of one side (Figure 42d); two short cylindrical marine shell beads (Figure 42e) and a large bead formed by grinding the spire of an as yet unidentified *Oliva* sp. marine shell (Figure 42f; Oliver 1975:-204-212). Copper items recovered include an axe weighing 203 grams (Figure 42h); a large mass of melded native copper (Figure 42j), possibly an unfinished axe; and several Type 1 beads. Also recovered were two fragments of a limestone pipe, similar to the Hind and Sartori specimens, and a piece of galena, notched for use as a pendant (Figure 42i), probably in the manner of the copper pendant from the Knight Mound group, in Illinois (Griffin et al. 1970:94, Plate 99a). Lead isotope measurements, carried out by Professor Ronald M. Farquhar of the Department of Physics, University of Toronto, indicate this galena was most likely obtained from the Rossie area deposits in northwestern New York (Ronald Farquhar, personal communication 1993).

## THE ZIMMER SITE (AdH1-20)

### Background

This site, located on Lot 1, Concession 15, Orford Township, Kent County (Figure 1), is situated on an oval sand hill measuring approximately 55 m along its northwest - south-east axis, 23 m along its southwest - northeast axis, and originally about three metres in height. The house of the property owner, Mr. Desmond Zimmer, is located at the northwest-ern end of this hill, with the barn (since re-



moved) at the southeastern end. Early historic land survey records indicate this hill was in a beech/maple dominated forest, immediately north of a black ash swamp. Beyond this swamp was a stand of sweet chestnut (Findlay 1978a).

In the summer of 1966, during the widening of the Howard - Orford Town Line Road, which runs past this property, Mr. Ralph White of Thamesville, Ontario, brought heavy earth moving equipment in to remove the top of the sand hill between the Zimmer house and barn. The excavated Plainfield sand of the hill was then spread over about 90 metres of the Town Line Road, immediately northwest of the Zimmer farm. During the course of this work, Mr. White's machinery sliced into three ochre-stained burials and a large deposit of cremated human bone. This cremation deposit was immediately re-buried in a shallow trench a few metres north of its original position and all that could be found of the in-flesh burials was gathered together with the intention of re-burying when the grading operation was completed (Desmond Zimmer, personal communication 1966).

Fortunately, word of this find was quickly passed on to the author (Donaldson) by Mr. James L. Secord, owner of the property across the Town Line Road from Mr. Zimmer. He persuaded Mr. Zimmer to allow the author to examine the recovered remains and run a test trench through what was left of the sand hill. This work was carried out on August 31 and September 1, 1966, with a summary report appearing in October (Donaldson 1966).

In 1968 Harry Bosveld followed up a lead provided by Donaldson and obtained the following additional information on this site.

In 1953, while levelling an area around the house to improve the driveway, Mr. Albert Zimmer (father of Desmond) uncovered a number of red ochre-stained human bones, including a skull with the mandible missing. All but the skull, which was given to his son, Morand, was reburied elsewhere on the property by Desmond. Morand then turned the skull over to Ernest and Doris Collette of Detroit, Michigan. The latter held a degree in archaeology from the University of Michigan and she, her husband and Mr. Wayne Booth (also of Detroit) visited the site. They recovered the missing mandible, as well as the ochre-stained, in-flesh burial of a child interred at the

northwest end of the hill, and additional ochre-stained human bone, including a child's mandible and fragments of a young adult's skull, located a few yards to the east - all of which were re-buried elsewhere on the property by Desmond Zimmer. In conversation with Mr. Albert Zimmer, the Collettes learned that in past years he had uncovered three red ochre-stained, in-flesh burials in the general vicinity of those uncovered in 1966, and that two human skulls had been dug up just off the south-west corner of the barn. These too had been re-buried elsewhere on the property. During their investigations, the Collettes and Mr. Booth managed to recover several artifacts. These, together with the Collette's field notes and complete skull, were donated to the Hiram Walker Historical Museum (now renamed the Francois Baby House Museum).

#### *Burials and Artifacts*

Little can be said of the burials uncovered at this site prior to 1966. Files at the Francois Baby House Museum indicate that the skull retained by the Collettes was examined in 1953 by Emerson Greenman, Department of Anthropology, University of Michigan, and in 1969 by an unnamed physical anthropologist from Trent University. Both agreed that it is the skull of a rather robust young adult male.

The in-flesh burials unearthed in 1966 involved an adolescent, probably female, between 14 and 18 years of age; an adult (sex undetermined) under 25 years of age; and an infant no more than a year old. Mixed with these bones, and unrecognized by White and Zimmer, were two unmodified deer metapodials. The cremation deposit represented at least two individuals and probably more (Donaldson 1966). The in-flesh burials had all been liberally sprinkled with red ochre, lay with their heads to the west, and were roughly in a line between the east corner of the Zimmer house and the west corner of the barn. The cremation deposit was partly under and slightly to the north of the juvenile. Sixteen short, cylindrical marine shell beads (Figure 43c) were recovered with the infant and a deer metapodial awl (Figure 43e) was found with the juvenile (Desmond Zimmer and Ralph White, personal communication 1966). From the relocated cremation deposit, Donaldson recovered a 1.9 cm long end portion of a two-holed,

rectanguloid marine shell "gorget" (Figure 43a), similar to the Sartori specimen (Figure 40b); a worked beaver incisor (Figure 43b); heat-shattered portions of two bifacial points of quarried Onondaga chert (Figure 43g,h); a heat-shattered portion of a scraper of quarried Onondaga chert (Figure 43f), and the tip portion of a broken and calcined bone awl (Figure 43d). Recovered from the disturbed sand above this cremation deposit was a knife or scraper of secondary deposit Onondaga chert (Figure 43i).

The Collette collection from this site includes a circular three-holed marine shell "gorget" (Figure 43n) showing the same use-wear pat-tern previously described; approximately one half of a slightly smaller circular marine shell "gorget" having a much larger central hole and, apparently, diametrically opposed paired peripheral suspension holes (Figure 43k) (one pair apparently drilled at such an angle as to intersect within the body of the artifact, leaving a bridge of shell between them); a small, roughly circular, marine shell pendant having a single suspension hole near the rim (Figure 43m); and 36 short, cylindrical marine shell beads (Figure 43j,l).

## THE PORT FRANKS (PINERY PARK) SITE

### *Background and Excavation*

This site is located on Lot 32, Lake Range West, Bosanquet Township, Lambton County (Figure 1). Here a large sand dune has been cut by an artificial waterway (the "old cut", dug during the 1870s) which connects Port Franks to the Ausable River. The site can be viewed from the Highway 21 bridge over this water-way.

On Saturday, October 19, 1963, during a weekend camp-out at this location by members of the Brights Grove Boy Scout troop, scout Michael Rowe noticed a patch of red-stained sand about 107 cm below the top of the eroded east bank of the waterway cutting through this dune. Investigating, he soon uncovered ochre-stained human bone and a chert point. Enlisting the help of three of his scout troop and supervised by their scoutmaster, Mr. Donald Hollingsworth, the boys dug out, and sifted through a fine mesh screen, the soil from a single, oval-shaped grave, measur-

ing approximately six by three feet (183 by 91.5 cm) (Jury 1978:2). In a day and a half they recovered the fragmentary remains of at least three in-flesh burials, including one juvenile, and the cremated remains of another juvenile, six to eight years of age, showing evidence of having been cremated off-site while the bone was still green (Coppieters 1967).

Reading an account of this discovery in the October 21, 1963, issue of the *London Free Press*, Mr. Neil Coppieters immediately visited Mr. Hollingsworth and obtained a first-hand account of the excavation. Though limited in time, he was also allowed to examine the recovered material, take measurements and make sketches of the artifacts recovered. The skeletal remains and artifacts were turned over to Wilfrid Jury of the University of Western Ontario the following day. On Saturday, October 26, 1963, Mr. Coppieters, accompanied by Mr. Hollingsworth, visited the site, made some measurements and recovered additional skeletal material missed by the scouts. It is of some interest that he noted the burial was located between two buried sod lines which were exposed in the eroded face of the channel cut through the dune. The most recent of these was 30.5 cm beneath the surface at the top of the dune. The older line was 183 cm beneath the surface (Coppieters 1967).

Jury's report on this site was eventually published (Jury 1978) but Coppieters had completed only a first draft of his report before his death in 1968 (Coppieters 1967). The artifacts, now housed in the London Museum of Archaeology, have been re-examined by the author (Donaldson) and the results of this study are included in the following description of the recovered grave inclusions.

### *Artifacts and Grave Goods*

The worked chert artifacts, all of primary source material, include an erratic bifacial point of Kettle Point chert (Figure 44f); four bifacial points of Onondaga chert (Figure 44d,e; see also Jury 1978:Plate 1, Figures 5,7), one with a missing tip (Figure 44d) and one with a missing base (Figure 44e); three T-shaped drills (Figure 44g,i; see also Jury 1978: Plate 1, Figure 3); a problematical (Figure 44h), described by Jury (1978:Table 1,11F) as a knife and by Coppieters (1967:3) as a possible strike-a-light; and a large, thick flake (Figure

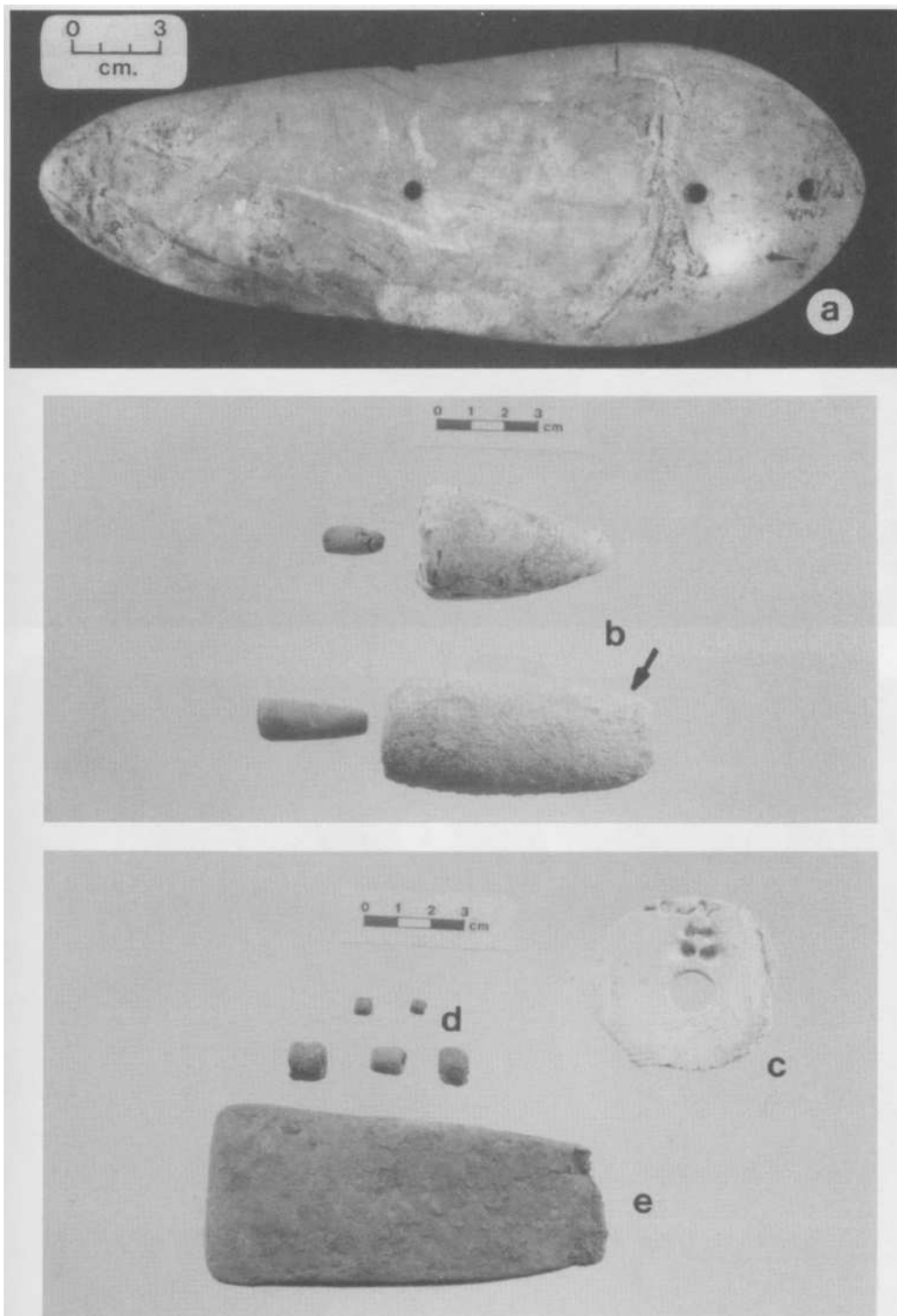


Figure 41. Sartori Site Sandal-Sole "Gorget" (a), Rikley Site "Cloudblower" Pipes With Pebble Inserts (b) And Caron 2 Site Artifacts (c-e)

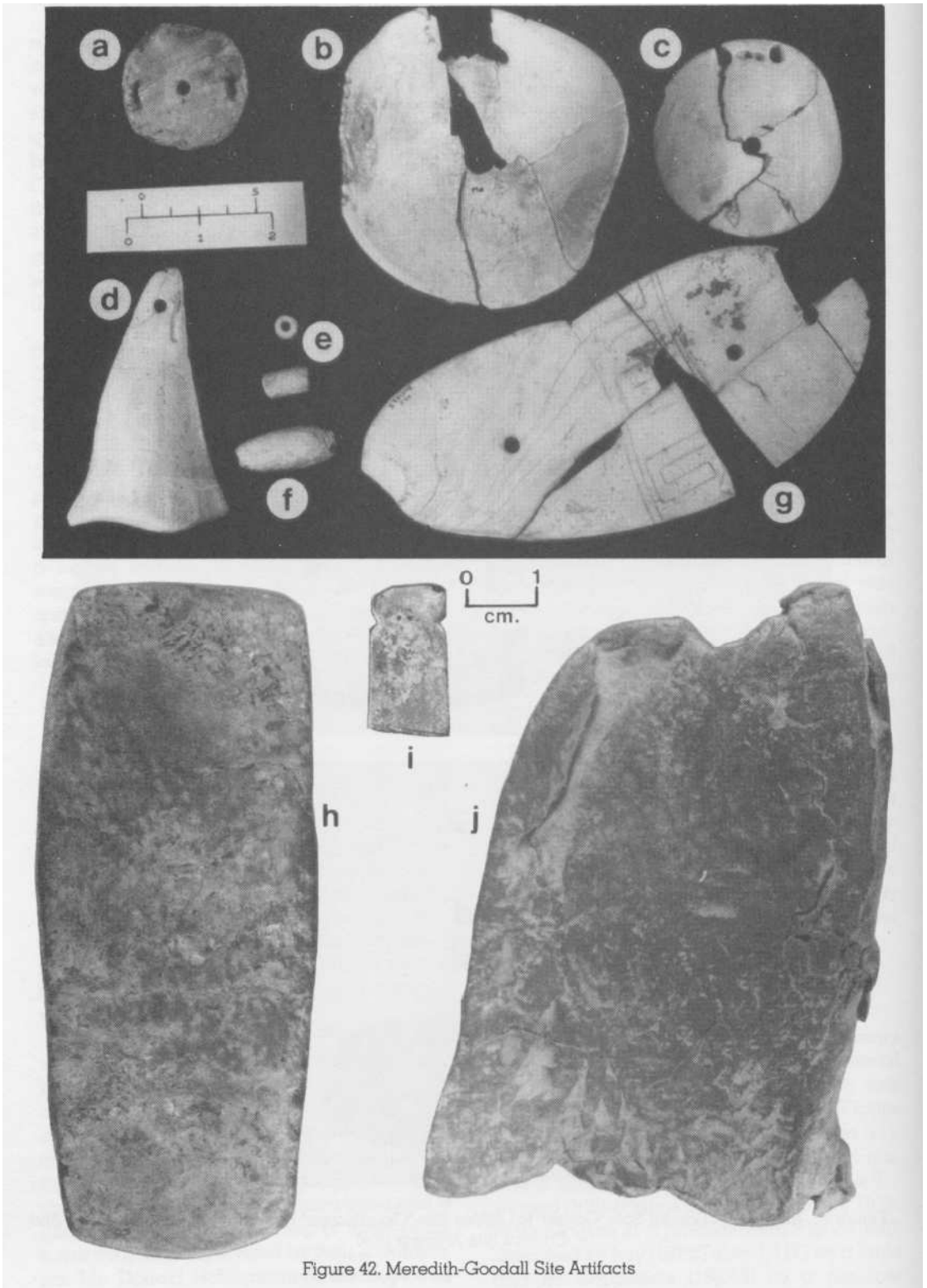


Figure 42. Meredith-Goodall Site Artifacts

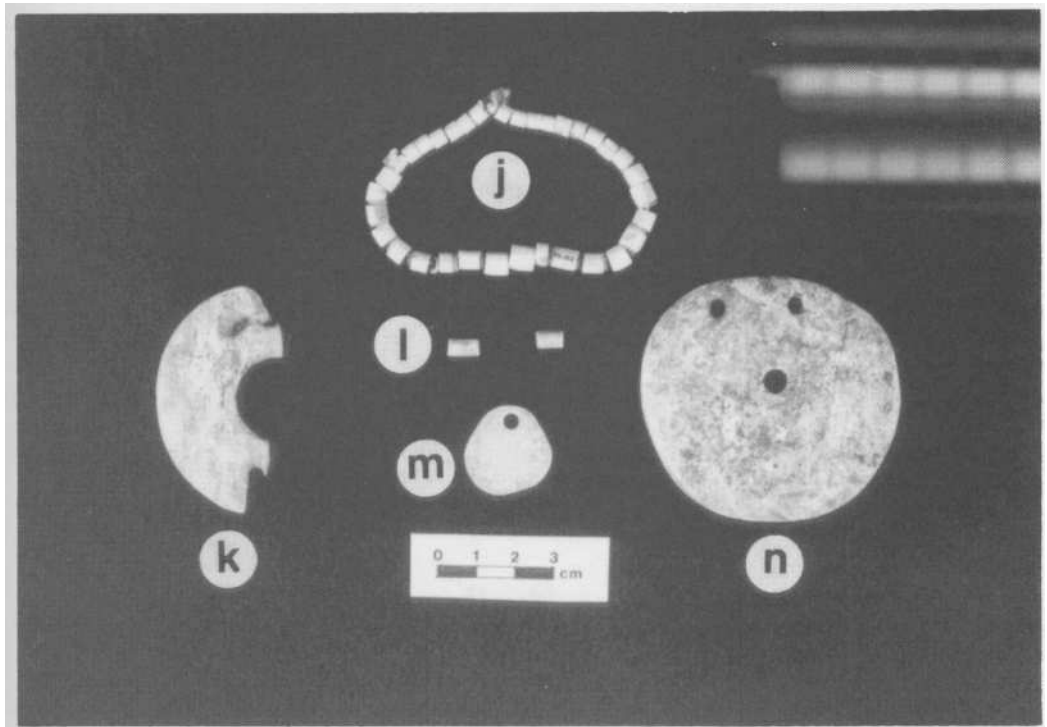
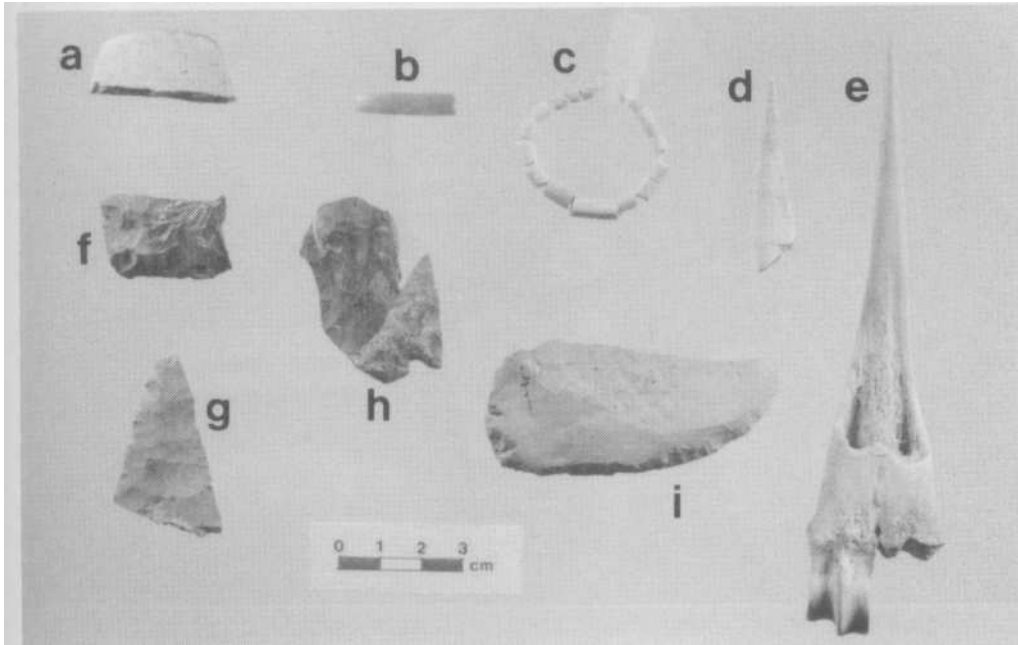


Figure 43. Zimmer Site Grave Artifacts

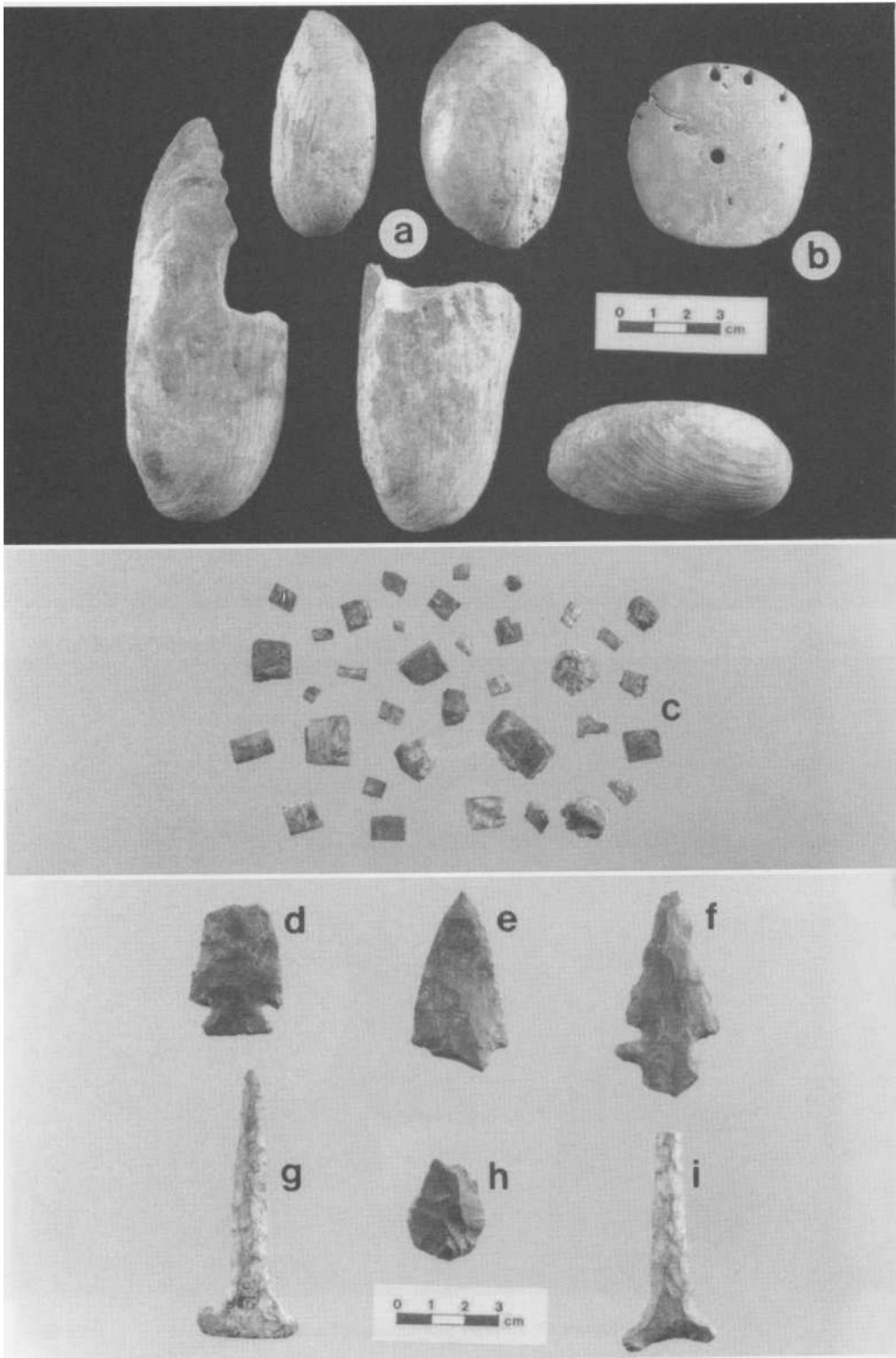


Figure 44. Port Franks Site, Grave Inclusions

45b) of Onondaga chert.

Also recovered was a lump of pyrite having a wear pattern suggesting use in a fire-making kit (Figure 45a); a copper adze with a slightly gouge-shaped bit (Jury 1978: Plate 4, Figure 4); three copper "awls", pointed at each end and square in cross section (Figure 45d); two complete and one fragmentary Type 1 copper beads (Figure 45c); four bear canines, two of which are copper stained (Figure 45j); three notched and drilled bone harpoon darts, the longest one copper-stained from notch to tip (Figure 45g,h,i); the highly polished tip of a fourth bone harpoon dart (Figure 45f); and an antler tine tip (Figure 45e).

Included in the collection was a circular marine shell "gorget" having a central hole and two marginal suspension holes (the latter having a wear pattern identical to those previously described above). A third, smaller hole near the rim of this specimen appears to have been made by a marine boring animal (Figure 44b). Also present were three complete and two recently broken freshwater mollusc valves. These were identified by Debbie Berg (personal communication 1995) as *Ligumia recta* (Figure 44a, lower left and centre), *Elliptio dilata* (Figure 44a, upper left and lower right) and *Lampsilis radiata* (Figure 44a, upper right). None of these had been artifactually altered or evidenced use-wear. In addition, 41 small, unmodified galena cubes (Figure 44c) were recovered. Mentioned by Coppieters (1967:5) but not by Jury (1978), were two maxillary fragments from a small, unidentified mammal, each of which carried two teeth. These items were not in the museum collection examined by the author but can be seen in the photo-graph accompanying the October 26, 1963, *London Free Press* account of this discovery.

## THE BLACKFRIARS BRIDGE SITE

### Background

This site is located on the west side of Ridout Street, slightly north of Albert Street, in London, Ontario (Figure 1; Peters 1855). It was discovered in 1849 by Mr. John McDowell, owner of the Royal Arch Exchange, while excavating a cellar for that establishment. It is situated on high ground overlooking the north branch of the Thames River. The surface soil here is

Burford loam, a slightly acidic to near neutral gravelly loam, overlying stratified sand and gravel.

The recovered artifacts, all reported to have been taken from a single grave, were procured from Mr. William Matheson, of Lucan, Ontario, by David Boyle, of the Canadian Institute. Boyle was the first to publish the discovery (Boyle 1888:40-41, 1889:63, 1891:53). These artifacts subsequently formed part of the old Ontario Provincial Museum collection and now reside in the Royal Ontario Museum in Toronto. There is no record of either the number of burials found in this grave or their disposition.

### Artifacts

Fourteen artifacts were recovered from this site, although only twelve are now available for study in the Royal Ontario Museum collection. Five are circular marine shell "gorgets" with a central hole and two smaller marginal suspension holes, all of which have been drilled from the concave surface and countersunk (Figure 46a-d). Also present are a marine shell sandal-sole "gorget" (Figure 47a); a trianguloid or heart-shaped marine shell pendant having a single, countersunk suspension hole drilled from the concave surface at the larger end (Figure 46e); a bar-type birdstone (Figure 46f) similar to the Hind specimens but having the rear portion of the body eroded away by some acidic substance (as in the cases previously described); a 9 mm-thick rectanguloid or axe-shaped slate "gorget" having a single central hole drilled from both sides (Figure 47b); a single Type 1 copper bead (Figure 48a); eight discoidal shell beads and one cylindrical shell bead made from the columella of a large marine shell (not available for study; see Boyle 1889:41); and a large heart-shaped marine shell "pendant" (Figure 48b). Three counter-sunk holes have been drilled across the widest part of the latter specimen from the concave surface. An additional specimen, a bar-type birdstone (old Provincial Museum catalogue number 10694), may also be from this site but is no longer available for study.

The sandal-sole and circular marine shell "gorgets" from this site all have the same wear pattern as those recovered at the Hind site (supra). The four very small holes drilled along the broken edge of the sandal-sole "gorget" are modern, created to attach the broken "heel"

end that is now missing (see Boyle 1908:54, Figure d).

## THE SCHWEITZER SITE (AiHC-16)

### Background and Excavation

This site was located on a Burford-Fox sand and gravel knoll, just southeast of the east end of Schweitzer Street, in the Bridgeport subdivision of Kitchener, Ontario (Figure 1), just a few kilometres beyond the northern boundary of the Carolinian biotic zone of the Eastern Deciduous Forest Region (Rowe 1972:89), within the Great Lakes - St. Lawrence Forest Region (Rowe 1972:93). It was discovered in September of 1979 by workers preparing the ground for the construction of the Holy Family R.C. Parish and Croatian Centre.

Field investigations were undertaken by students from Sir Wilfrid Laurier University under the direction of Dr. Dean Knight. Unfortunately, construction workers, neighbourhood children, the police and local coroner had already carried out their own investigations and virtually nothing remained undisturbed. The skeletal remains and artifacts obtained by the police were turned over to William A. Fox, at that time Regional Archaeologist, M.C.C., London, Ontario. The skeletal remains were subsequently analysed by Dr. Susan Pfeiffer of The School of Human Biology at the University of Guelph (Pfeiffer 1979). The recovered artifacts were measured, photographed and eventually placed on display in the Guelph Civic Museum.

### Burials

The recovered skeletal material, removed from a single grave, represents two individuals: a young juvenile, approximately three years of age, and an adult (whose generally robust build and large brow ridges suggest a male) over fifty years of age. Nearly two thirds of "his" teeth were lost premortem and the remainder were worn down to the dentin. Both auditory meati show exotoses. Parts of the spine and lower limb bones show the effects of some unknown pathological factor (Pfeiffer 1979). Almost all the recovered skeletal remains were stained with red ochre. Copper staining was present on all the recovered bones of the

young juvenile but these were too few (11 total) and fragmentary to determine a pattern. The staining pattern on the adult skeleton suggests copper grave inclusions were placed near the right hand and midshaft of the right femur, as well as near the rib cage, just to the left of the sternum. Since the right hand could have been at the side of the body (placing it next to the midshaft of the femur) or folded across the chest (placing it just to the left of the sternum) only two unrecovered copper grave inclusions are suggested for this individual.

### Artifacts

Because of the recovery circumstances noted above, only four grave inclusions from this site are available for study. These are a bar-type birdstone of mottled grey limestone (Figure 49a) with mounting or suspension holes drilled in the same manner as those from the Hind site (supra); a circular marine shell "gorget" with a central and two marginal holes (Figure 49d), the latter having the same wear pattern as previously described; a small marine shell pendant (Figure 49c) that originally had two suspension holes drilled near the periphery (one of these subsequently broke, but the pendant was modified and used with the remaining hole); and a copper-stained, rectanguloid marine shell artifact (pendant?) having two holes drilled along its longer axis (Figure 49b). These holes show little, if any, evidence of wear (see Ellis et al. 1990b, Figure 4.28H,J for scale drawings of the Schweitzer site birdstone and circular 3-holed "gorget").

## THE FINLAN SITE (BaGk-1)

### Background

This site is in Murray Township, Northumberland County, on the west side of New Wooler Road, about .8 km north of Highway 401, and 6 km northwest of Trenton, Ontario. The surface soil is Brighton sandy loam, underlain by gravel.

In 1964 an unknown number of red ochre burials were bulldozed out of the southeastern slope of a sand knoll at this location. Neighbourhood children quickly collected some of the scattered remains as curios. Word of this discovery reached Reverend Bowlad P. Squire, a local historian and archaeological enthusi-



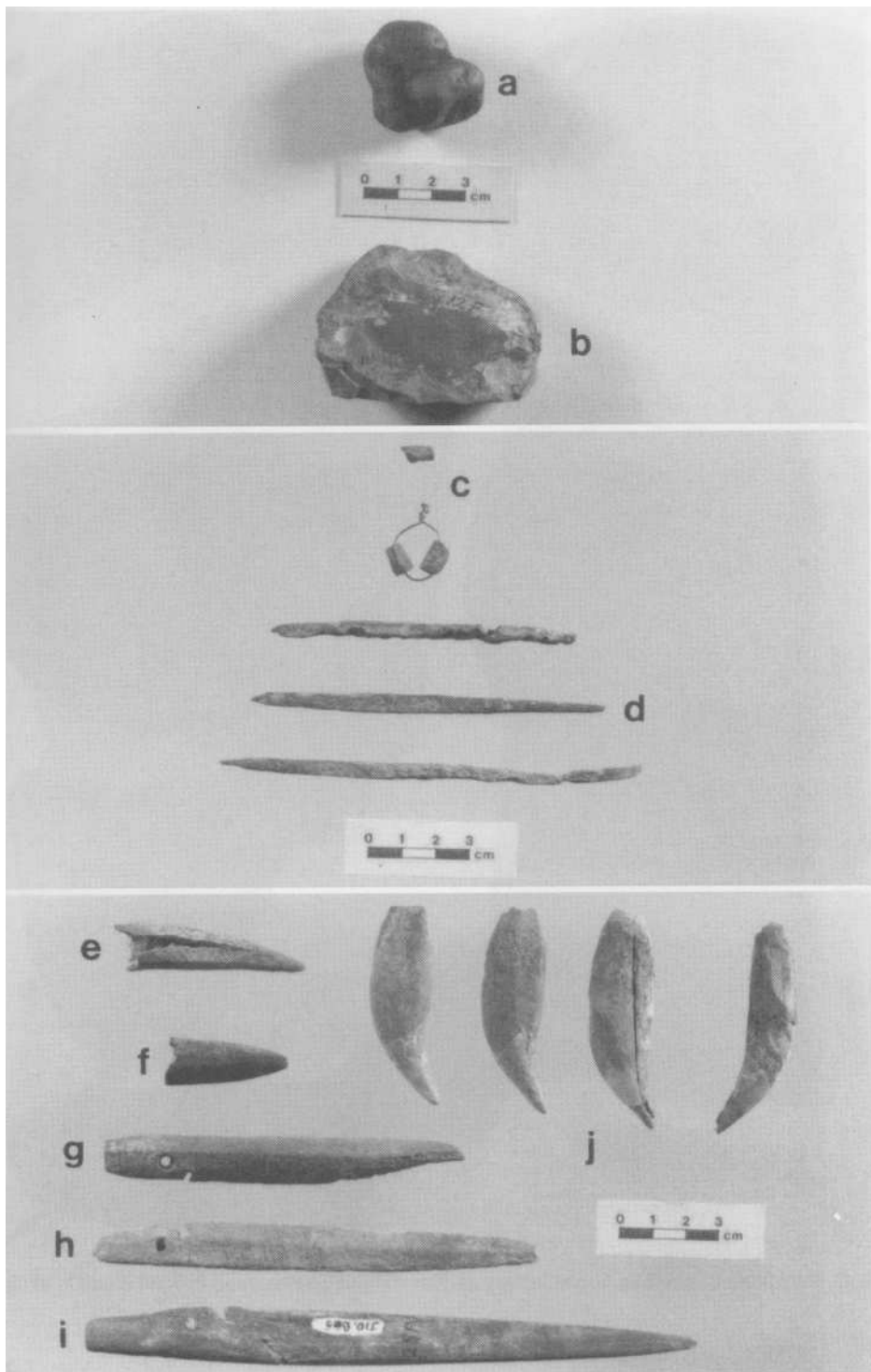


Figure 45. Port Franks Site, Grave Inclusions

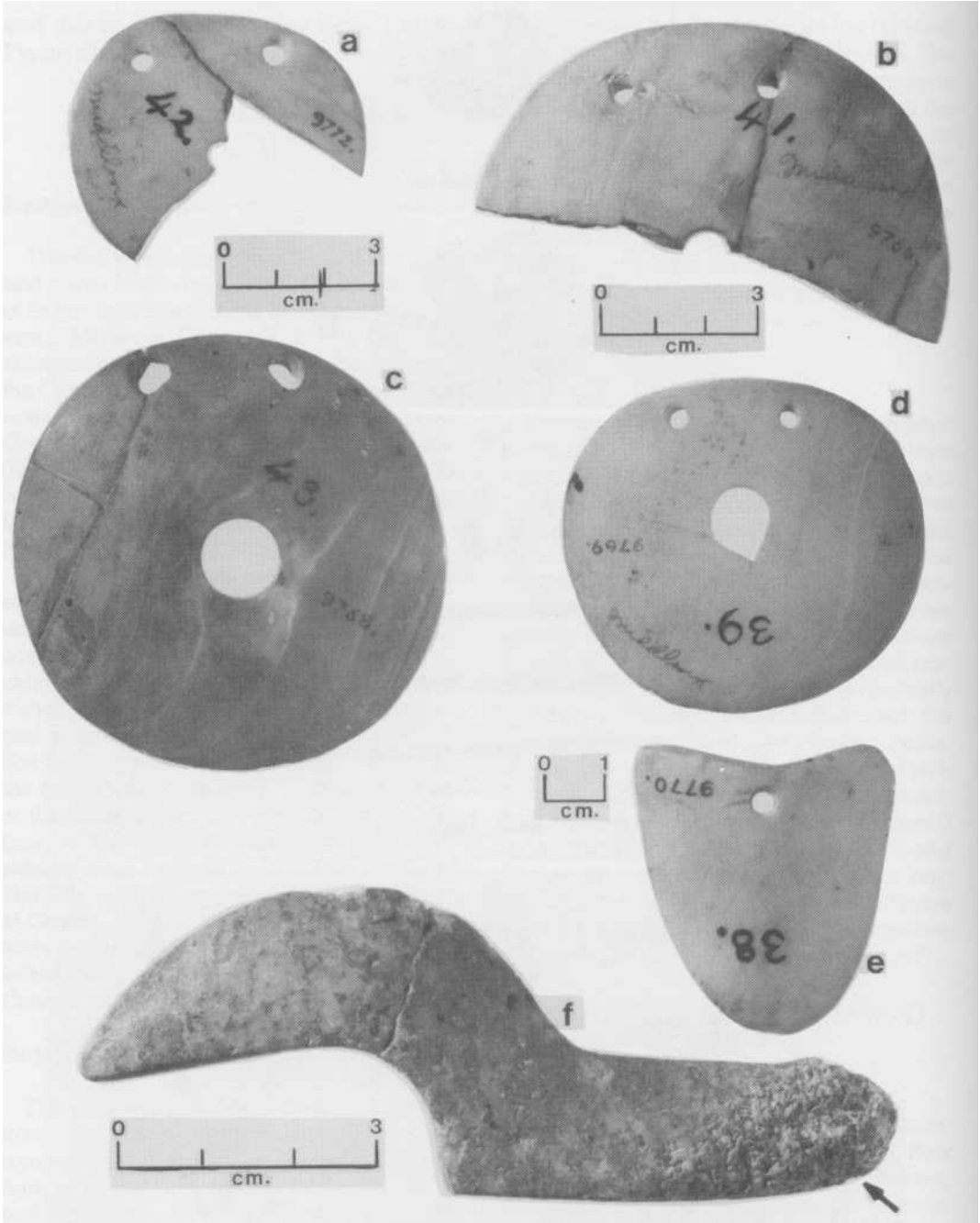


Figure 46. Blackfriars Bridge Site, Grave Inclusions. Arrow Points To Reactively Eroded Area On Birdstone (D I

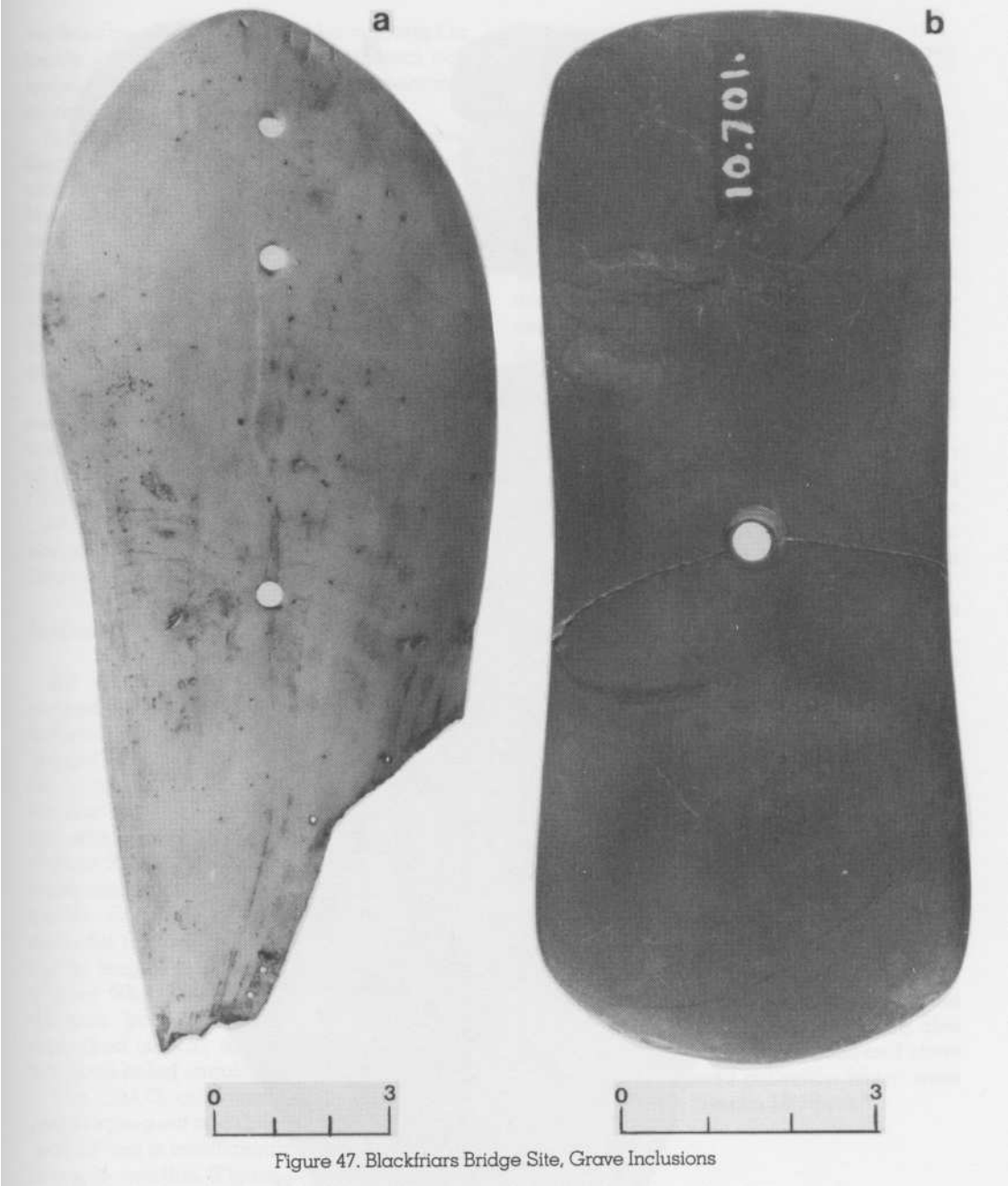




Figure 48. Blackfriars Bridge Site, Grave Inclusions

ast from nearby Trenton, and he managed to locate and obtain most of the material collected by the children (James Wright, personal communication 1993).

In September of that year, J.V. Wright viewed Squire's collection of artifacts from this site and obtained a number of these for the National Museum of Canada (now the Canadian Museum of Civilization). He also sketched and photographed the material retained by Squire and visited the site. Although he shovel-shined and test pitted the area, he was unable to locate any more material or evidence of additional burials.

Reverend Squire died in 1991 and the present location of his Finlan site collection is unknown. Nevertheless, through the kindness of Dr. Wright and the Canadian Museum of Civilization, we have been able to view the C.M.C. collection and access Dr. Wright's sketches and photographs of the missing Squire collection.

### Artifacts

All of the recovered Finlan material is stained with red ochre. The Squire collection includes a broken marine shell sandal-sole "gorget", measuring 23.8 cm in length and 7.8 cm in maximum width (Figure 50b); a broken circular marine shell pendant, 8 cm in diameter, with a central and two marginal holes (Figure 50a); seventy-five complete and eight fragmentary portions of discoidal marine shell beads, ranging in size from 3.9 to 11 mm in diameter (Figure 50d); and a copper axe, 14.6 cm in length, 5.7 cm wide, and 1 cm thick (Figure 50c). The wear pattern on the sandal-sole "gorget" is the same as previously described (*supra*), as is the wear pattern on the three-holed circular marine shell "gorget".

The C.M.C. collection consists of 11 fragments from a cut and drilled large marine shell artifact that is insufficiently complete to determine its function (Figure 50f); four discoidal and one cylindrical marine shell beads, ranging in size from 3.9 to 10 mm in diameter, and 1.8 to 11.5 mm in length (Figure 50e); 17 galena nodules (Figure 51a); and three proximal end portions of human femora (two left, one right), all with their greater trochanter removed, and all broken from the femoral shaft at about the same location (Figure 51b). These all belong to young adults of undetermined sex.

## THE TRENTON MOUNTAIN SITE

### Background Information

Trenton Mountain is the name used locally for Mount Pelion, a 53 m-high prominence between the west bank of the Trent River and the Trent Memorial Hospital, in the city of Trenton, Ontario (Figure 1). The surface soil at this site is Pontypool sand, a slightly acidic to neutral sand subject to wind erosion when deprived of surface cover.

The first record of graves being discovered on this site appeared in the May 11, 1882, issue of the *Trenton Courier*. It stated that in 1881, while removing an old pine stump prior to planting maple saplings in the park on Mount Pelion, an "entire skeleton of a red man or one of Champlain's voyageurs" was recovered. No mention is made of grave inclusions or the disposition of the skeleton.

In a preface to a list of new accessions to the old Ontario Provincial Museum, Rowland B. On (1922:102) mentioned the acquisition of the entire G.J. Chadd collection. Mr. Chadd, a Divisional Court clerk in Trenton, had spent nearly half a century collecting specimens from Prince Edward County and surrounding area and had built a large museum to house the material. Included in this collection were artifacts reportedly recovered by a Mr. H.A. Mumford of Trenton from a burial site on Trenton Mountain.

In his May, 1928, report to the Royal Society of Canada, W.J. Wintemberg (1928:177) stated that Mr. Chadd had reported to him that "Mr. Mumford had found three bird amulets in the graves" (emphasis added). Wintemberg also describes and illustrates shell, bone and stone artifacts in the Chadd collection which were catalogued "from Trenton Mountain"

### Artifacts

Two birdstones in the old Provincial Museum collection (catalogue numbers 38474 and 38475) are listed from Mount Pelion". With the addition of these "Mount Pelion" specimens, a total of nine artifacts from this site are now available for study. The stone specimens include 5 bar-type birdstones (Figure 52a-e) and 1 problematical (Figure 53) of banded slate. The birdstones range in size from 10 to

17 cm in length and 3.5 to 5 cm in height. All have their body portion drilled in the manner of the Hind birdstones (*supra*). The problematical specimen is shaped like a dugout canoe. There is a 2 mm wide and 1.3 mm deep groove cut across the "bow", two intersecting grooves forming a cross at the "stern" and a fourth, shallow groove, along the "keel" line. The authenticity of the "stem" and "keel" grooves may be questioned but, aside from some suspected touching up, the "bow" groove appears to have been made at the time the artifact was manufactured. Although unique in form, it to some extent resembles the "Ellipsoid Bar Weights" described and illustrated by Converse (1978:8-9) and, to a lesser degree, the "Boatstone" forms (Converse 1978:62-63).

Three marine shell artifacts were recorded from this site. The largest of these (Figure 54c) is a pendant, described by Wintenberg (1928:193) as a "pear-shaped gorget". It is 14.4 cm long and has a maximum width of 6.5 cm. Two suspension holes, approximately 4 mm in diameter, had been drilled from the concave surface at the larger end of the artifact and countersunk. On the convex surface these holes have a wear pattern diagonally outward towards the large end. On the concave surface the wear is between the holes. At roughly the centre line, two-thirds of the way towards the small end, is a drilled and countersunk 3 mm diameter hole showing little evidence of wear. Small notches along the sides from the larger end almost to the level of the 3 mm hole are also evident. Traces of red ochre were noted. A second pendant (Figure 54b) seems to have been formed by reworking a larger broken artifact. In its present broken condition it measures 5.4 cm in length and 4.5 cm in maximum width. There are five holes, four of which have been drilled from the concave surface and countersunk. The two suspension holes at the large end are 3 mm in diameter. There is some slight use-wear on the concave surface between these holes and on the convex surface running diagonally outward towards the edge of the artifact. The three remaining holes form a ragged line towards the broken end of the pendant. The upper two are 3.5 mm in diameter, while the one at the break is 4.4 mm in diameter. No use-wear marks were observed at these holes. Red ochre was noted adhering to this specimen. The third pendant, possibly a reworked three-holed "gorget" (Figure 54a), is

roughly circular with a projection on the rim above a single 4 mm diameter suspension hole. A 7.5 mm central hole was, like the suspension hole, drilled from the concave surface and countersunk. Use-wear was noted angling upwards to the left from the suspension hole when viewed from either side of the pendant. Red ochre was quite evident on this artifact, which had a maximum diameter of 5.3 cm.

Also recovered from this site but discarded some time ago and no longer available for study was the worked rostral portion of a black bear skull (old Ontario Provincial Museum catalogue No.40488). Fortunately, some thirty years ago the author sketched and took measurements of this artifact. Moreover, an illustration of it, lacking a scale, appeared as Figure 32 in Wintenberg's 1928 report. By re-drawing Wintenberg's figure to our measurements we were able to obtain a scale copy (Figure 54d). This specimen matches almost perfectly the two complete specimens recovered from the Hind site (*supra*).

## THE PICTON SITE

### *Background*

This site is located on Lot 23, Concession 3, M.T., Hallowell Township, Prince Edward County, about 1.6 km southwest of Picton, Ontario (Figure 1). The surface soil at this location is Pontypool sand, a slightly acidic to neutral material subject to wind erosion. It was this characteristic that contributed to the discovery of the first of thirteen burials found on this site. In 1912, while plowing the much eroded southern slope of a small sand knoll on the farm then owned by Mr. James Bedborough, Mr. George Leslie uncovered a deep red stain in the sand. At a depth of 60 cm beneath the surface, he discovered the extended in-flesh burial of an adult male, apparently enclosed in tree bark. Also discovered was an associated cremation deposit and nearly two dozen grave inclusions encased in red ochre (Wintenberg 1928:177; Ritchie 1949:24).

Approximately seven years later, a second grave was uncovered by Mr. Leslie and excavated by a local physician, Dr. Donald S. Lighthall. This interment was the flexed, in-flesh burial of an adolescent who was covered with red ochre at an approximate depth of 45.7

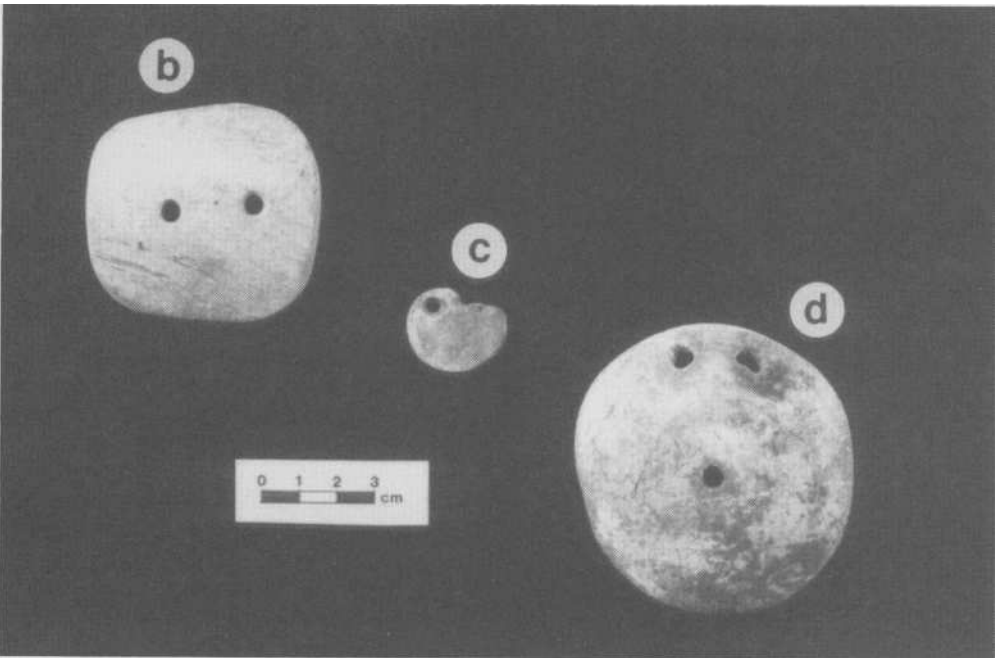
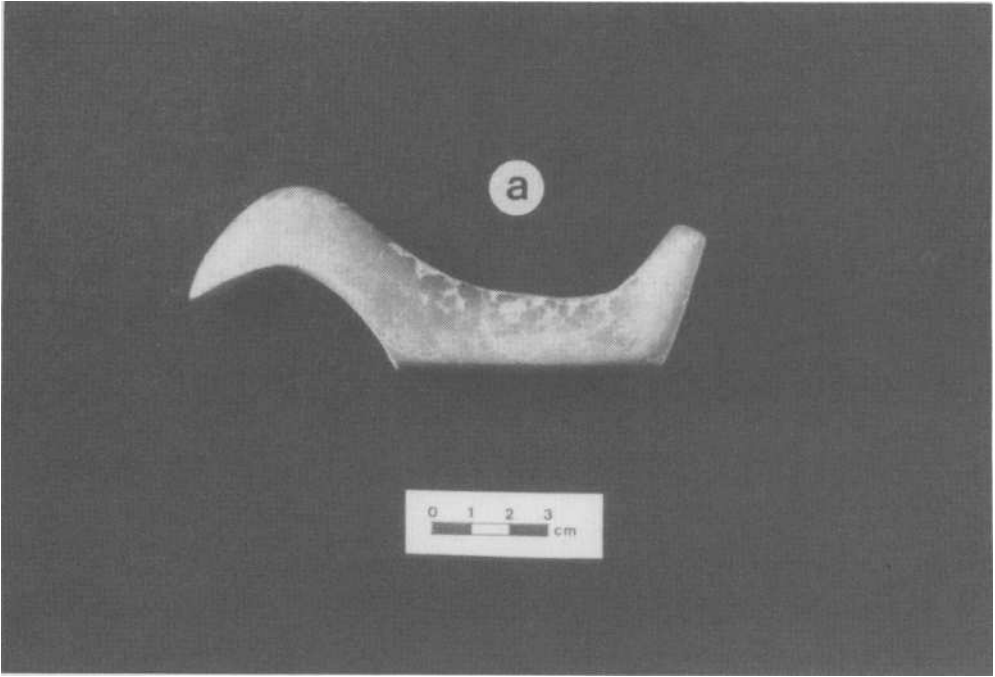


Figure 49. Schweitzer Site, Grave Inclusions

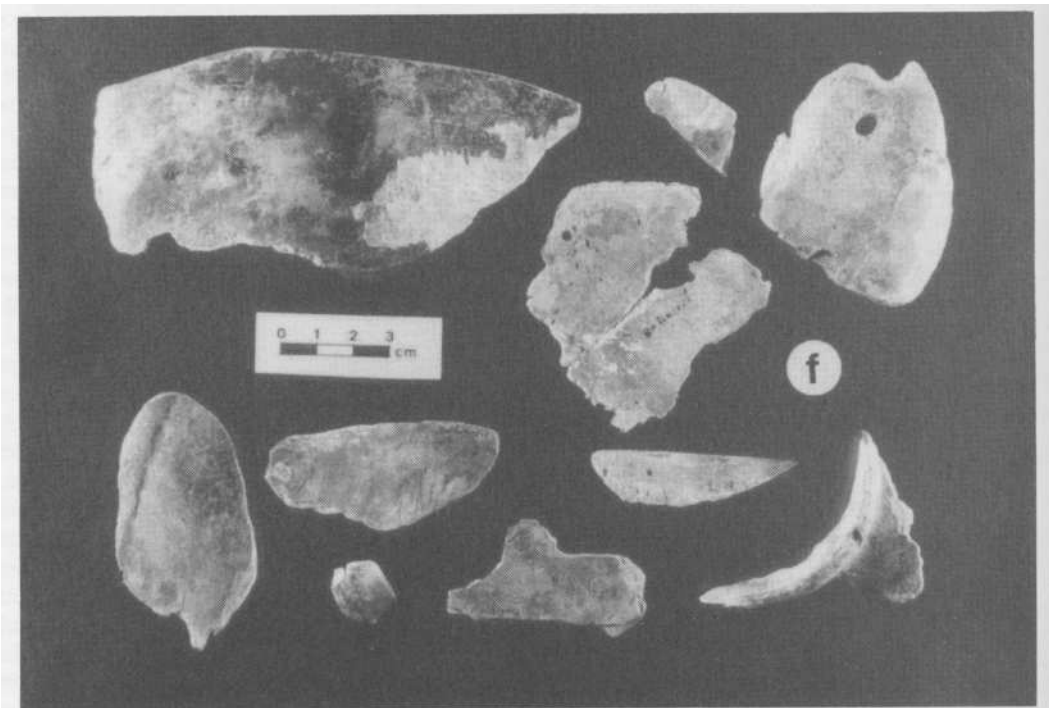
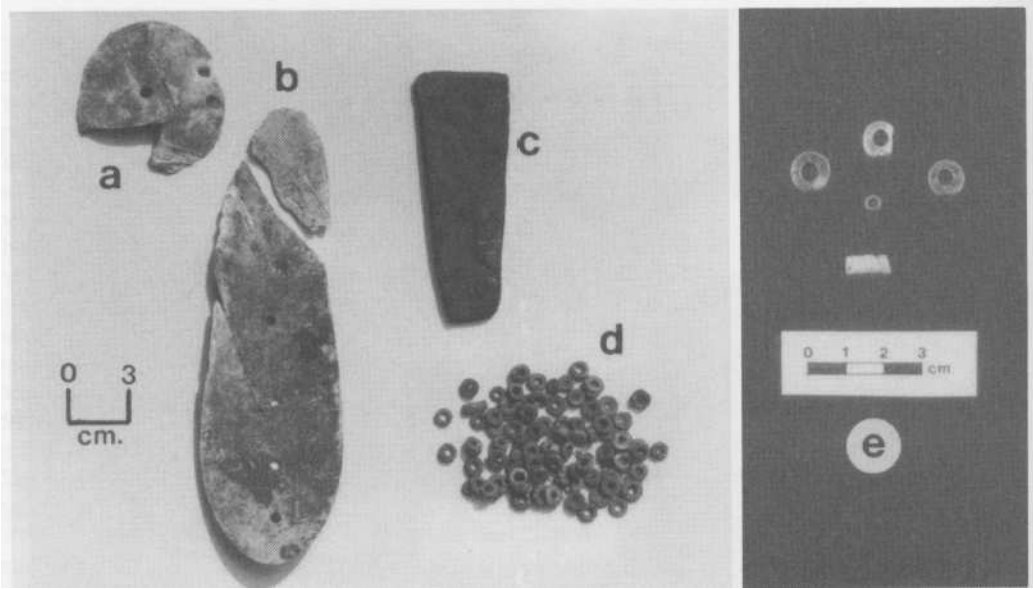


Figure 50. Finlan Site, Grave Inclusions



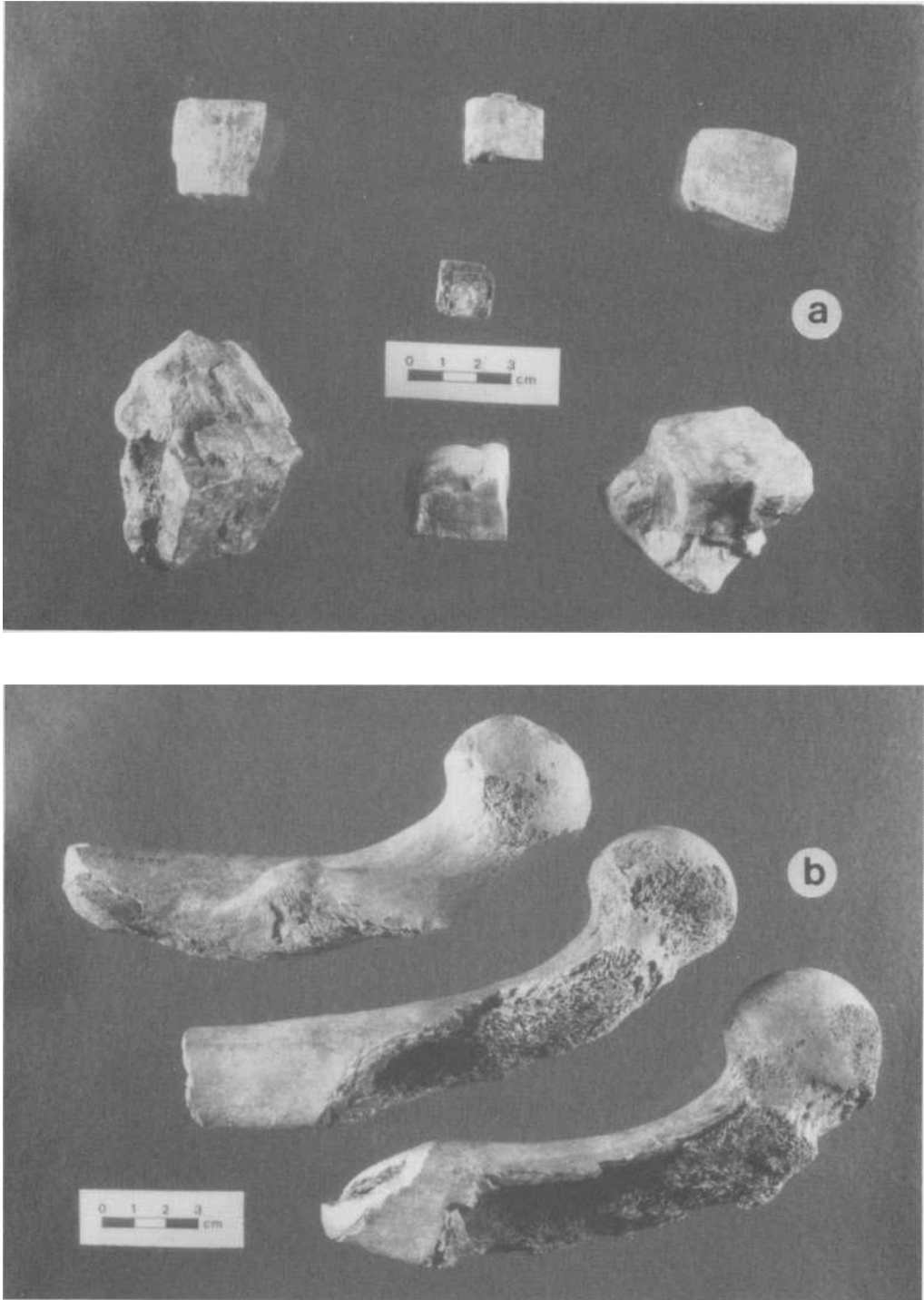


Figure 51. Finlan Site, Grave Inclusions

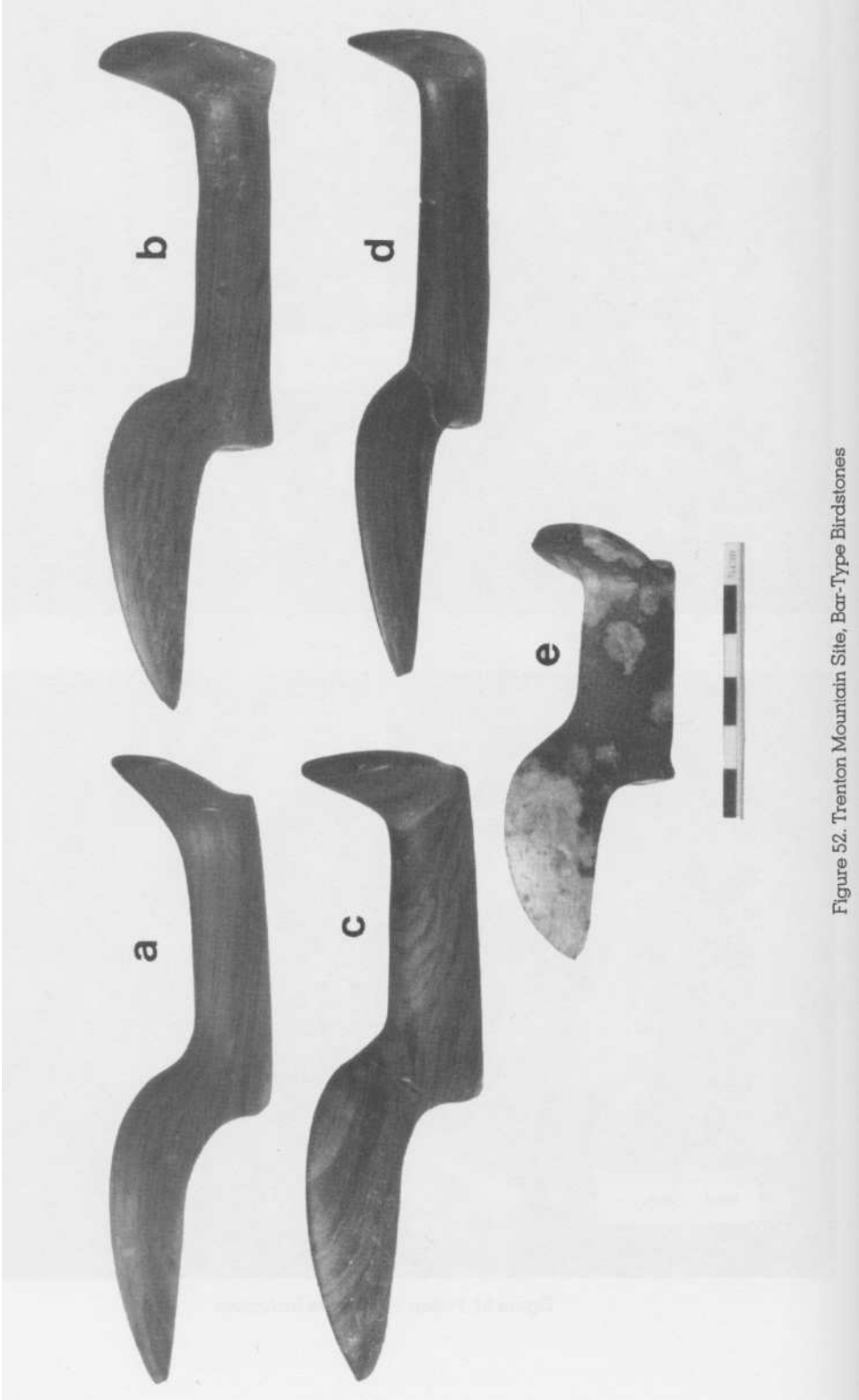


Figure 52. Trenton Mountain Site, Bar-Type Birdstones

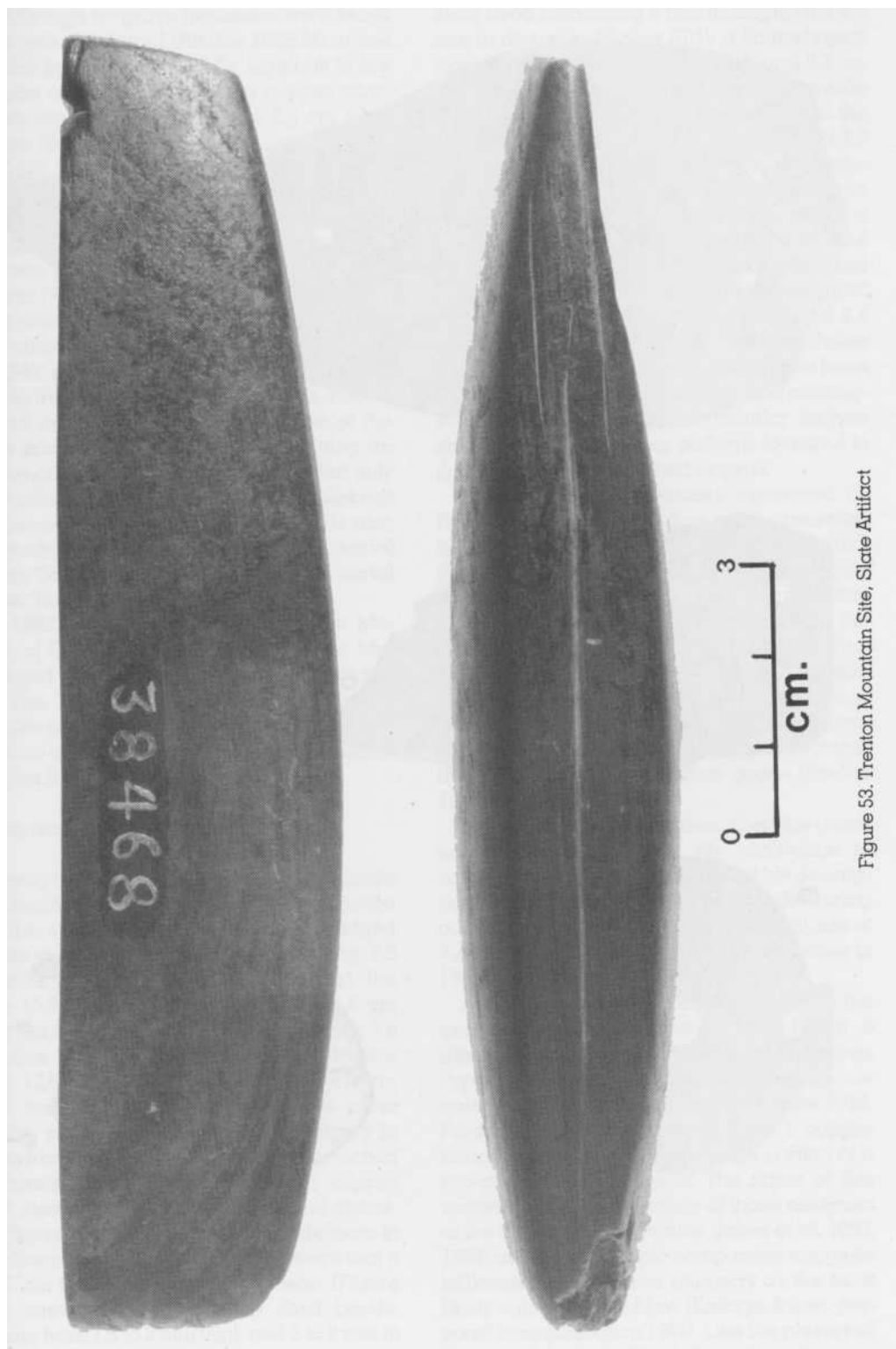


Figure 53. Trenton Mountain Site, Slate Artifact

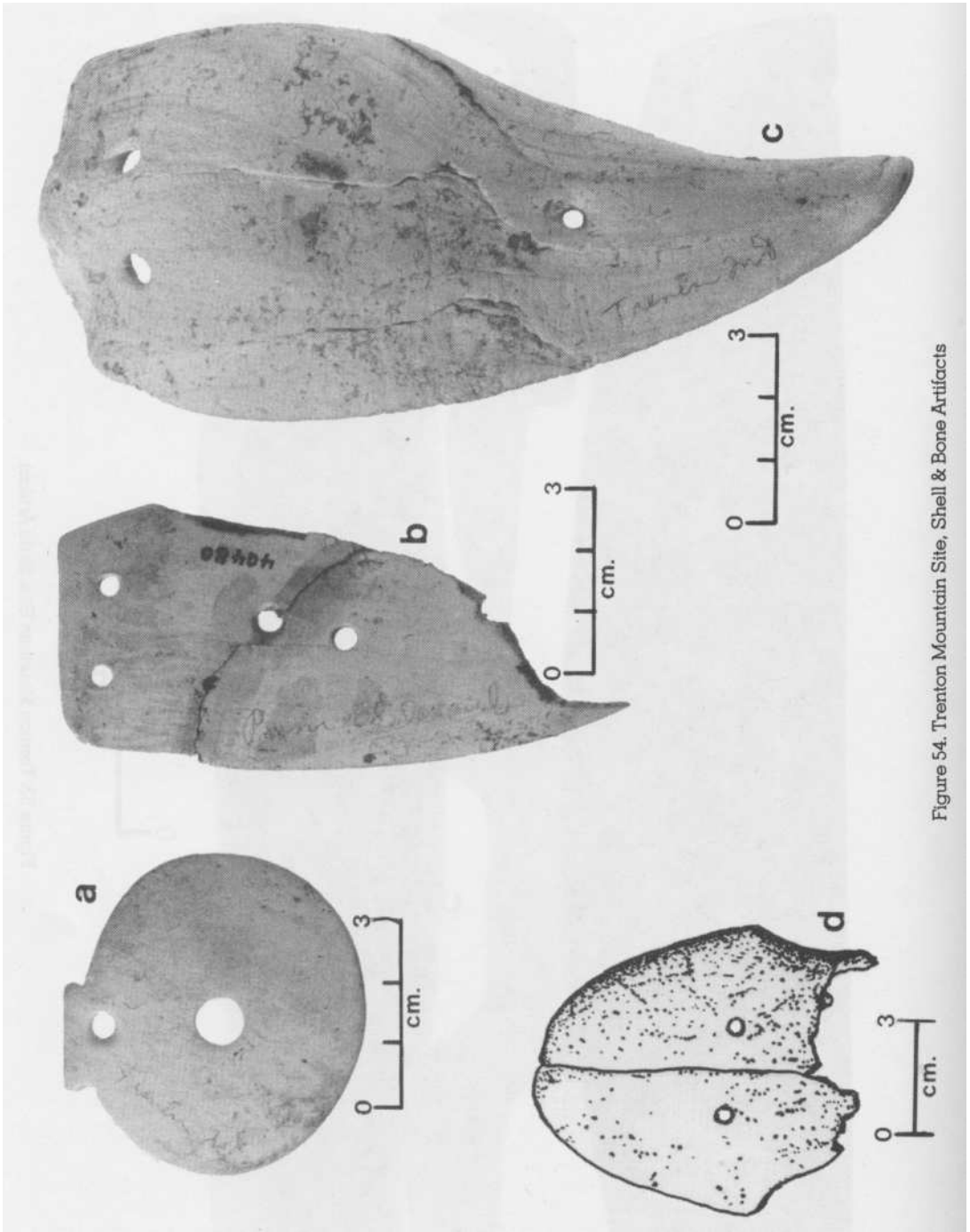


Figure 54. Trenton Mountain Site, Shell & Bone Artifacts

cm. Although no grave inclusions were found in situ with this burial (Ritchie 1949:24), a test pit, sunk by Mr. Leslie and Dr. Lighthall "a few feet east of Burial B", yielded a copper adze, 8.1 cm long, 3.8 cm wide and 2.2 cm thick (Ritchie 1949:24).

In 1928, W.J. Wintemberg's paper, "Artifacts from Ancient Graves and Mounds in Ontario", which included a description and illustrations of some of Mr. Leslie's discoveries at the Picton site, was published by the Royal Society of Canada (Wintemberg 1928). Knowledge of this publication may have influenced W.A. Ritchie in his selection of sites to be examined during his 1948 archaeological survey in southern Ontario (Ritchie 1949). During this work, Ritchie carried out an exhaustive exploration of the entire knoll at the Picton site, excavating an additional 11 burials and determining that only the southern and eastern slopes of the knoll had been utilized as a burial ground. He also designated Mr. Leslie's 1912 multiple burial find as "Burial A" and the 1919 juvenile burial find as "Burial B" (Ritchie 1949:26).

In 1993, we examined the Canadian Museum of Civilization and the Rochester Museum and Science Center collections from this site. The R.M.S.C. also graciously supplied samples of the Picton site green clay and red ochre for analysis and comparison with similar samples from the Hind site.

#### *Burials and Grave Inclusions*

Twenty two artifacts recovered by Mr. Leslie from Burial A are now in the C.M.C. collection from this site. These consist of two blunt-edged copper axes, one measuring 17.6 cm long, 7.6 cm wide and 1.8 cm thick (Figure 55a), the other 15.9 cm long, 7.3 cm wide and 1.6 cm thick; two copper gouges, one 17.5 cm long, 7.8 cm wide and 1.1 cm thick (Figure 55b), the other 12.6 cm long, 5.7 cm wide and 1.1 cm thick; four severely corroded, square cross section, copper awl-like artifacts, ranging in length from 15.5 to 24.6 cm, with two detached fragments (Figure 56a); one Type 1 copper bead measuring 9.5 mm in length and diameter (Figure 57a); one copper bead identical in manufacture to the Type 1 bead except that it is 4.1 cm long and 8 mm in diameter (Figure 57b); seven discoidal marine shell beads, ranging from 1.5 to 3 mm thick and 3 to 8 mm in diameter (Figure 57c); a cylindrical marine

shell bead measuring 9 mm in length and 4.6 mm in diameter (Figure 57d); a flask-shaped marine shell pendant, 4.7 cm high and 3.3 cm at its widest point, with a 3 mm suspension hole drilled through the narrowest part of the neck (Figure 56d); a roughly circular (8.6 x 7.7 cm) marine shell pendant with a central perforation and two suspension holes near its rim (Figure 56b); the re-worked upper half of a three-holed circular marine shell pendant, 10.4 cm in diameter (Figure 56c); and a broken and repaired sandal-sole marine shell "gorget" measuring 22.7 cm long, 8 cm wide and 4.4 mm in thickness (Figure 56e). The three holes along the long axis of this specimen have been drilled from the concave surface and counter-sunk. The sandal-sole and circular marine shell "gorgets" carry wear patterns identical to those previously described (*supra*).

The eleven burial features excavated by Ritchie in 1948 consisted of eight cremation deposits and four in-flesh burials, one of which (Burial 4) may have disturbed and largely destroyed an additional, earlier cremation deposit (Ritchie 1949:30). All but two of the in-flesh burials (Burials 4 and 9) and the dual cremation deposit (Burial 7) had used green clay (in amounts ranging from a few small nodules to large, solid sheets) as a grave inclusion. All but one of the burial features (Burial 6) also included grave goods (Ritchie 1949:28-32).

Ritchie (1949:34-41) has described the grave goods recovered during his excavation in some detail, and we will not repeat his descriptions here. A few observations made during our examination of several of these artifacts at the Rochester Museum and Science Center in 1993 are, however, appropriate.

All the copper beads from this site, with the exception of two recovered from Burial 8 (Ritchie 1949: Figure 1 le), can be classified as Type 1. The exceptions are identical to the one recovered from Picton Burial A (Figure 57b). Preserved within the typical Type 1 copper beads from Burial 10 was a large portion of a two-ply stringing material. The fibres of this material were characteristic of those assigned to the Group 1 classification (lakes et al. 1993, 1994) and a microscopic comparison suggests milkweed, nettle or red mulberry as the most likely source of this fibre (Kathryn Jakes, personal communication 1994). Like the preserved Hind and Meredith-Goodall cordage, this was

Z-spun and had an S-twist (Gwen Spicer, personal communication 1994). The sandal-sole "gorget" from Burial 7 (Ritchie 1949:Figure 11v) has copper staining on the "toe" end. The sandal-sole "gorget" from Burial 10 (Ritchie 1949:Figure 11w) has been eroded at the "heel" end and along one side by contact with some acidic material in the grave shaft. The effigy pendant from Burial 3 (Ritchie 1949:Figure 10) was being conserved against advanced Byne's disease (Davis 1989:13-16) and could not be handled.

## THE COLLINS BAY SITE

### Background

This site (Figure 1) was discovered in 1949 by Mr. Wilfrid Holder while grading the eastern slope of a sandy hill, just north of Highway 33 at Collins Bay, Ontario, 9.6 km west of Kingston. The surface soil is calcareous Bondhead sandy loam. At approximately 90 cm beneath the surface he encountered a grave containing two flexed, in-flesh burials largely covered with red ochre and recovered three marine shell grave inclusions. The skeletal remains were turned over to D.C. Matheson, Professor of Anatomy, Queen's University, Kingston. Two of the recovered artifacts were given to Guy Blomeley of Kingston, the other was given to C. Hutcheson of Collins Bay (Ritchie 1955:72).

In 1952, Ritchie and two assistants spent four days examining the artifacts and skeletal remains, and excavating an exploratory trench through the site. From the same grave shaft that produced the two burials uncovered in 1949, a disturbed, ochre-steeped cremation deposit, apparently unnoticed by Holder, was recovered. At approximately 4.6 m to the west, uphill from the first find and surrounded by red ochre, the lower limbs of another in-flesh burial were encountered at a depth of less than 10 cm beneath the level reached by Holder's scraper (an estimated 62 cm beneath the surface prior to grading operations). At a point approximately midway between these two graves, and 22.5 cm below the graded surface, another ochre-covered cremation deposit was uncovered. It was 35 cm in diameter and 20 cm in depth. No grave goods were found with this deposit. There was also evidence on the scraped surface of this hill of several other in-flesh and cremated burials, and that the

cremations themselves had been carried out elsewhere (Ritchie 1955:73).

### *Burials and Artifacts*

According to Ritchie (1955:72-73), Matheson identified the two in-flesh burials uncovered by Holder as that of an adult female, 35 to 40 years of age, and a juvenile of about 5 or 6 years of age. The lower limb bones recovered in 1952 were that of an adult of undetermined sex. No information is given on the recovered cremation deposits.

The two marine shell artifacts in the Blomeley collection were a simulated bear canine pendant, 60 mm in length, 24 mm in maximum breadth, and 14 mm in centre thickness (perforated laterally near the "root" apex for suspension) and a rectanguloid, two-holed "gorget" with excurvate sides, measuring 106 mm in length, 40 mm in width, and 7 mm thick. The marine shell artifact in the Hutcheson collection was a broken and reworked rectanguloid "gorget" similar to the Blomeley specimen, with the break smoothed over and two new holes drilled in it (Ritchie 1955:72-73). These "gorgets" are similar to the complete specimen recovered from the Sartori site (Figure 40b).

## OTHER POSSIBLE ONTARIO "GLACIAL KAME" SITES

The following Ontario burial sites have at various times been reported as "Glacial Kame" in archaeological journals. Although details are sketchy, we have decided to include what-ever information is extant.

### *The Essex Site*

In his report on the archaeological survey he carried out in southwestern Ontario in 1950, Tom Lee (1952:66) mentions a site in Essex County belonging "to Glacial Kame, yielding several sandal-sole gorgets." An accompanying map (Lee 1952:Figure 3) places this site somewhere near the centre of the county, but our efforts to obtain more information have not been met with success.

### *The Weston Site*

Wintemberg (1928:176) reported the discovery, in 1907, by Mr. Edward Redmond (in a

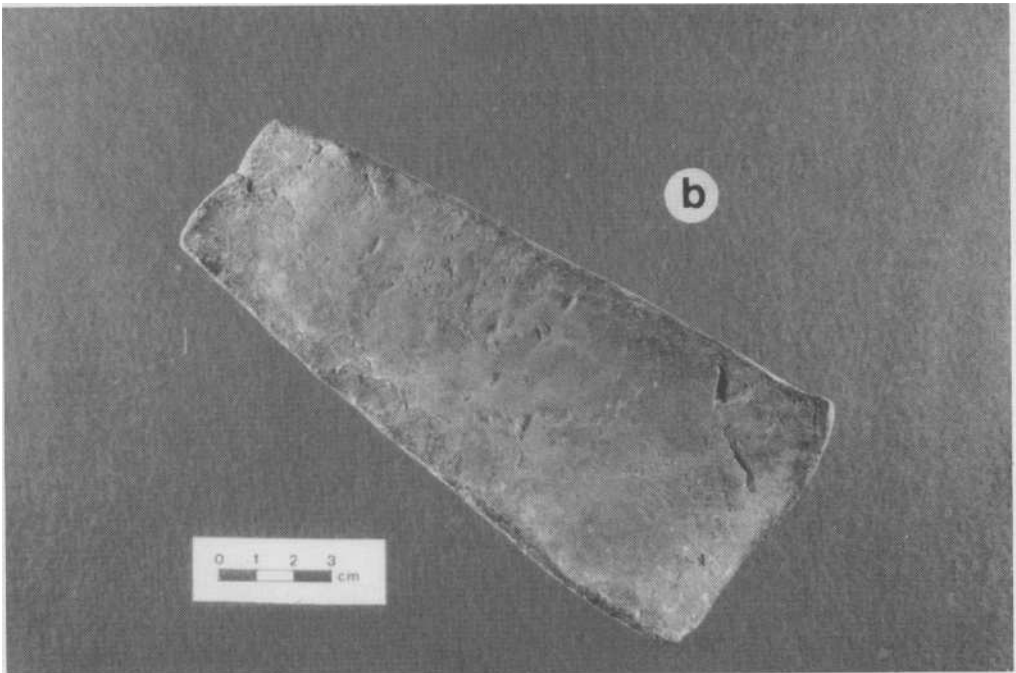
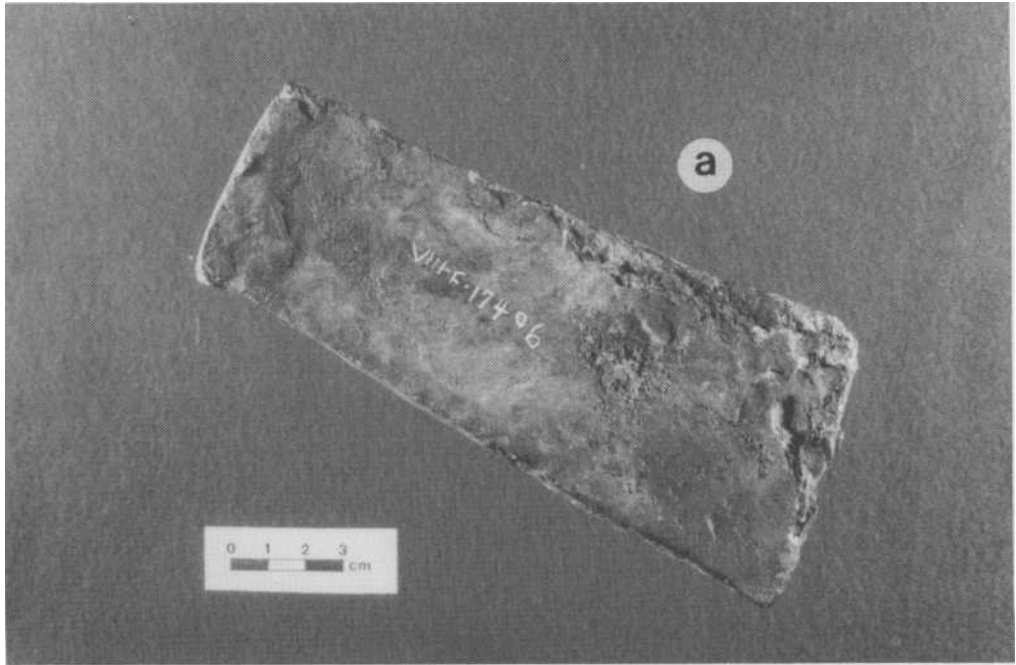


Figure 55. Picton Site, Copper Axe (a) And Adze (b)

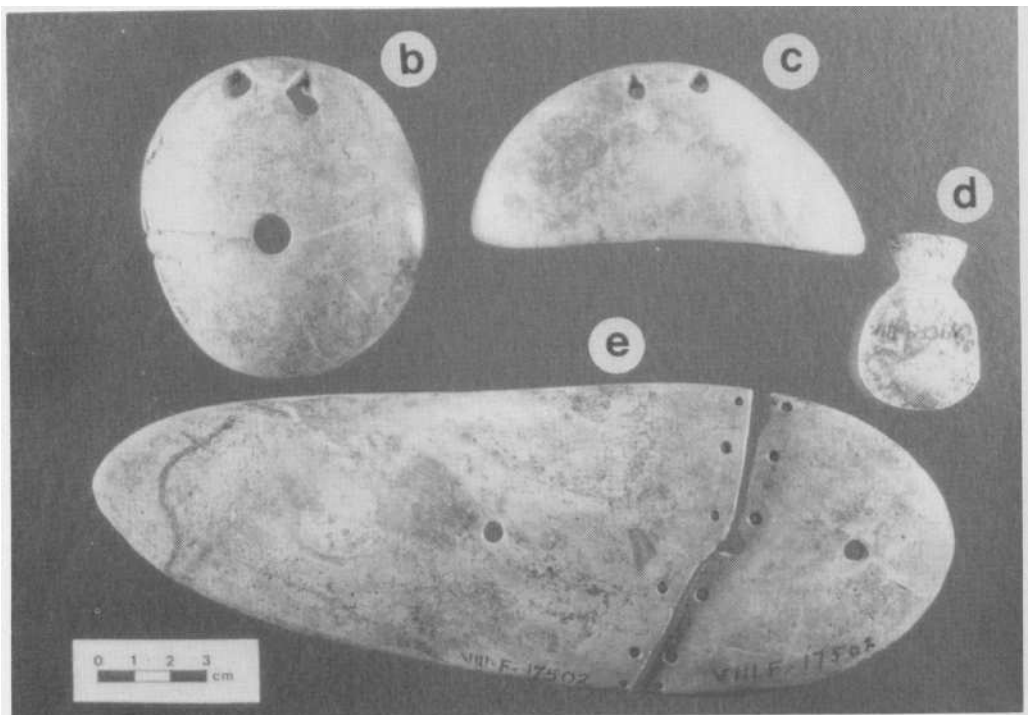
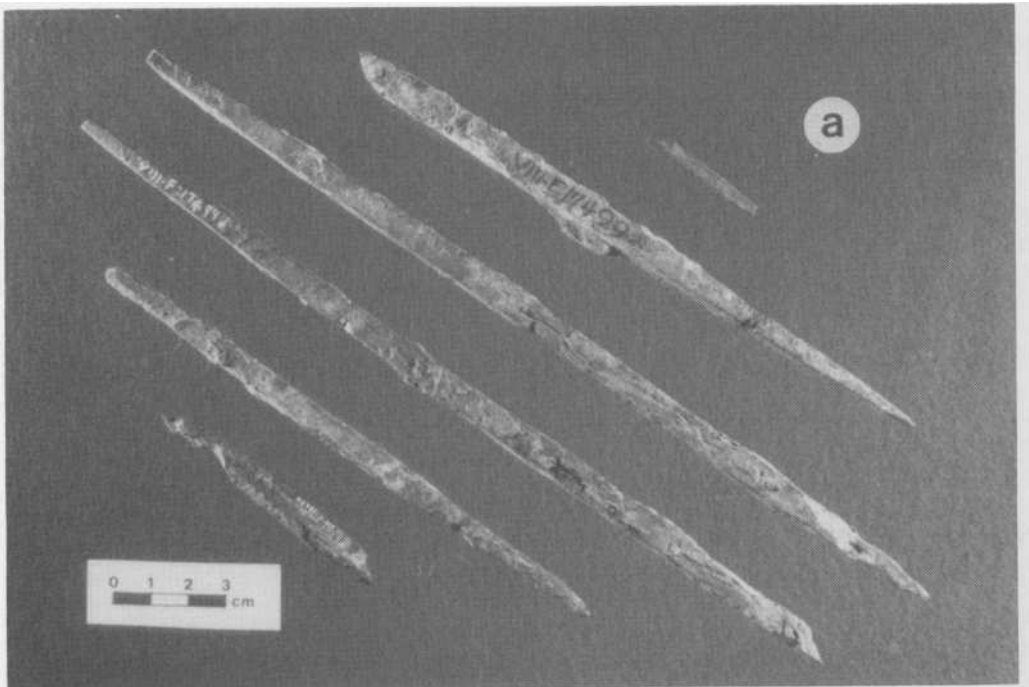


Figure 56. Picton Site, Copper "Awls" (a) And Shell Artifacts (b-e)



gravel pit on Lot 7, Concession 5, York Town-**ship**, **York** County, at the west end of the village of Weston) of an extended, in-flesh burial, head to the south, covered with red ochre. There was a string of about 60 Type 1 copper beads around the neck and a double pointed, square cross-section, 15.6 cm long copper "awl" near the right hand. Unfortunately, we have been unable to obtain more information on this site, and only one of the recovered copper beads has been located (Canadian Museum of Civilization, old N.M.C. catalogue No.VIII-F-8517).

#### *The High Park Site*

First reported by On (1922:38-40), this site was discovered in January, 1921, during road construction on the property of Mr. J.A. Harvey (then known as the "Harcroft Bird Sanctuary"), on the west side of High Park, Toronto. Here, on a high sandy ridge immediately north of Grenadier Pond, at an approximate depth of 90 cm, workers uncovered a single grave containing "eight or ten" red ochre-covered in-flesh burials. All were in "the usual sitting position" (flexed?). Some nine metres north of this grave and at about the same depth, two groups of smaller bones (juvenile in-flesh burials?) were located. These were also covered in red ochre. The only artifacts recovered were "a small pierced amulet and a copper artifact". Unfortunately, On fails to describe these further or to provide information on their associations. There is no record of their acquisition by the old Ontario Provincial Museum.

#### *The Port Hope Site*

As reported in "The Globe", April 6, 1881 issue (page 9, column 2), this site was discovered on the property of Mr. J.A. Brown of Augusta Street in Port Hope. Workmen uncovered, in sandy soil, a grave containing the much-decayed skeleton of a single individual whose grave goods included "several arrow heads, a piece of skull bone [marine shell pendant?] with a hole in it as if it had been a neck ornament, a copper axe or hatchet, and about a pailful of heavy metal, which has since proved to be antimony [galena?]"'. There was no mention of the disposition of the recovered grave goods and our attempts to locate them have been unsuccessful.

## DISCUSSION

### Lifestyles and Burial Methods

Little progress has been made in testing the idea that "Glacial Kame" burial sites represent a distinct late/transitional Archaic culture, primarily because well-documented contexts and association data have been lacking. The completion of the controlled excavation of the Hind site, the various analyses of the recovered material, and our compendium of known "Glacial Kame" burial sites in Ontario, has made it possible not only to shed some light on the life and times of these prehistoric people, but to test various hypotheses.

Cranial measurements (Susan Pfeiffer, personal communication 1982) reveal a Hind population index range from the high end of the mesocephalic to the low end of the brachycephalic (76.1 to 82.9). There is also considerable sexual dimorphism among the non-cremated adults. The males are tall (178 to 181 cm in height), have strong muscle markings, heavy tooth wear, and often have keeled cranial vaults. The females are comparatively short (164 to 170 cm in height), lightly built, and also show heavy tooth wear. Three of the adults from this site had ossified thyroid cartilage (Pfeiffer 1977:35-36).

The extreme dental attrition noted in this population suggests that coarse vegetation was included in their diet (Varney 1994:16). While overall good nutrition is indicated by the osteological analyses (Pfeiffer 1977; Varney 1994), the multiple Harris lines evidenced in the long bones of the juveniles suggests the possibility of occasional severe nutritional deprivation, rather than disease, as the cause (Varney 1994:19). Such deprivation could be brought about by an unusually severe winter, a cyclical "crash" in the food chain, a delay in the early spring fish run, or some combination of these factors. The evidence of pervasive osteoarthritis relatively early in life (Varney 1994:18-19) indicates activities placing more stress on the body than is usually the case in today's North American populations. Considered as a whole, the foregoing suggests that the Hind site people led a generally harsh and rugged lifestyle.

Patient reconstruction and careful examination of the cremated bone from this site (Figure 58) has provided evidence that, as a group, the bones of these individuals were still fresh,

articulated, complete, and probably tightly flexed, at the time they were burned, and that a considerable amount of fuel was required for each event (Pfeiffer 1977:143, 145). The absence of evidence for a crematorium on the site suggests that the cremation itself was carried out elsewhere.

Although we have been able to provide detailed descriptions of the age, sex, pathological conditions and body orientation on most of the excavated burials at the Hind site, the fact that several of these burials were unaccompanied by grave goods or red ochre, and that a few Late Woodland artifacts were recovered from the plow zone and disturbed portion of the site, raises the possibility of the presence of a later component. A fluorine concentration analysis of the human bone, as proposed by Spence et al. (1981), or a strontium concentration analysis, as proposed by Price and Kavanagh (1982), might enable the positive identification of such a component, but this was beyond the scope of this project. The dental wear patterns and caries studied by Pfeiffer (1977) and Varney (1994) on the Hind population suggest that any such mixing is minimal. On the basis of their studies, we suggest that one or more of the three individuals represented by the scattered and incomplete skeletal remains in Burial 12 may represent a later component. The same holds true with respect to the extraneous human bone recovered from the plow-disturbed Burial 5 and the undisturbed Burial 19. In the latter, the positioning of the body (Figure 62) and associated grave goods is unlike the rest of the burials on this site. The grave goods themselves (Figure 26) include chert bifaces somewhat similar to the Late Archaic Pomranky bifaces from Michigan (Binford 1963:Figure 4), but resembling more closely those recovered from Burial 3 at the Surma site (Fox 1990:183, Figure 6.7). The Surma site burial has tentatively been assigned a late/transitional Middle Woodland position (Emerson and Noble 1966: 83; Fox 1990:172, 182).

Questions about the homogeneity of the skeletal sample, as well as such variables as birth and mortality rates, the effect of diet and lifestyle on female fertility, and the frequency of the burial events themselves, make all current formulas for estimating band size from the skeletal remains at this site no more than educated guesses. Nevertheless, we accept

the estimates of Spence (1986:87) and Ellis et al. (1990b:117). These researchers applied the 3.4 percent crude death rate, averaged the individuals per grave, and suggested a population of 45 to 50 individuals for the band that used the Hind cemetery. We also accept their estimate of 35 to 50 individuals in the various bands responsible for the "Glacial Kame" burial sites in Ontario (Ellis et al. 1990b:118).

Several theories have been advanced to account for the unusual placement and condition of Burial 22 and Burial 23 in the grave shaft. These include decapitation prior to interment, secondary burial after primary inhumation elsewhere, and death due to severe physical trauma. To test the theory of decapitation prior to interment, we requested a thorough examination of the well-preserved cervical vertebrae and skull of Burial 22 for evidence of cut marks; none were found (Tamara Varney, personal communication 1994). Partial decomposition during a primary inhumation elsewhere prior to redeposition in this grave would have led to a greater separation of the hand and foot bones than was evidenced during our exposure of this burial (Michael Spence, personal communication 1995). Death due to severe trauma might account for the shattered femur of Burial 22, but any blow sufficient to separate the head of a living person from the body would have left some evidence on the skull or cervical vertebrae. Based on our own experience at this site, we suggest that this was a late fall interment, during which a sudden onset of freezing weather necessitated a change in burial procedure. The bodies were propped against each other at the southwestern edge of the grave shaft in a tightly flexed position, and were probably bound with cord or wrapped in a shroud. Large saplings or logs were then placed over the grave shaft and chunks of frozen sand heaped upon these. After partial decomposition of the flesh (during spring thaw?), the chamber tomb collapsed, severing the neck of Burial 22 and forcing the body down against Burial 23, which fell forward into the prone position. The force of the collapsing overburden caused the twisting and separation of the joints, the fracturing of the right femur of Burial 22, the scattering of the necklace beads, and the lensing and layering noted in the grave shaft.

The fact that the grave shaft of Burials 9 and

10 cut into the Burial 8 cremation deposit suggests that knowledge of the location of Burial 8 had been lost with the passage of time. Despite the lack of grave inclusions with Burials 9 and 10, the wear pattern on the teeth suggests an interment during the "Glacial Kame" time frame.

A correlation summary for the Hind site population (Table 1) shows no apparent relationship between the mode of burial and sex or age. As pointed out by Pfeiffer (1977:275-276) this differs from the Michigan pattern, where all cremations studied by Binford (1963, 1972) were adult females or sub-adults. In Ontario, the only other "Glacial Kame" cemetery excavated under fully controlled conditions is the Picton site (Figure 1). Nine of the sixteen individuals recovered from this site had been cremated. All of these were reported to be adults but none were positively identified as female (Ritchie 1949:24,28-32). Pending an exhaustive analysis, such as the one carried out by Pfeiffer (1977) on the Hind sample, we suggest that the Picton sample is more similar to the Hind than to Binford's Michigan sample, even though only 73 percent of the Hind cremations were adults. With no evidence of preferential cremation of females and subadults in the Hind and Picton samples, we should consider Pfeiffer's (1977:51) suggestion that cremation was a practical alternative, practiced when someone died in winter or when the group was far from their chosen burial area. We would not expect winter deaths to create an age or sex unbalance in the cremations from these sites, but cremation of individuals who died some distance from the band cemetery could lead to an over-representation of adults and older subadults. These would be the ones most likely to be included in summer-time resource extraction parties operating some distance from the base camps and band cemetery.

There also appears to be no preferred orientation of the Hind site primary inhumations in the grave shaft (Figure 62). There may, however, be some significance to the function and uneven distribution of grave goods in these burials. Although the sexual determinations for the adolescents (Burials 15 and 18A) are ambiguous, grave goods such as bear masks, non-utilitarian modified animal bones, ground slate and marine shell "gorgets" and copper axes are more strongly associated

with males. Similar observations were reported for the Knight and Norton Mound burials in Illinois and Michigan (Griffin et al. 1970:188).

#### *Grave Goods*

The use of green clay in two of the Hind burials and eight of the Picton burials is interesting. A mineralogical analysis of samples from these sites by Steven Donaldson (1994a, 1994b) has determined that the colour is due to the mineral glauconite, a potassium iron aluminosilicate with a high Fe<sub>3</sub>/Fe<sub>2</sub> ratio.

At present, the only glauconite deposits in Ontario known to us occur in the lower member of the Middle Ordovician Gull River Formation (Liberty 1969:27,30; Armstrong and Anastas 1992:133) and the Springvale member of the Lower Devonian Bois Blanc Formation (Uyeno et al. 1982:8, Figure 1). Current fieldwork indicates that natural outcrops of the Gull River Formation can be found from Port McNicol eastward to at least Seabright (Figure 61; Armstrong and Anastas 1993), with the probability that more will be found as the survey progresses eastward (Middle Ordovician deposits run as far east as Prince Edward County). In some of these outcrops, glauconite has been found in sufficient concentrations in the cracks and fissures of the rock that it can be readily scraped off (Derek Armstrong, personal communication 1993). Natural outcrops of the Springvale Member of the Bois Blanc Formation can be found from Hagersville eastward to Fort Erie in the Niagara peninsula (Figure 61; Uyeno et al. 1982:8, Figure 1), and continuing into New York nearly to Rochester (George McIntosh, personal communication 1994). Similar known outcrops can be found in the Conemaugh Formation, just south of New Concord, Ohio (Condit 1912), in the Upper Carboniferous Coal Measure clays, at Georgetown, Illinois (Bagg 1908), and in the Cambrian Sandstones of the Pictured Rocks National Lakeshore area, Alger County, Michigan (Michael Velbel, personal communication 1994).

A perusal of all available published reports on "Glacial Kame" burials located no reference to the use of green clay as a grave inclusion in the "nuclear Glacial Kame" area (Converse 1980:Figure 1). It should be recalled, however, that since very few of these sites have been dug under anything resembling controlled

Table 1. Hind Site Burial Summary. Key: (P) primary inhumation; (C) cremation; (IF) loosely flexed; (TF) tightly flexed; (F) female; (M) male; (X) present; (?) uncertain.

BURIAL	TYPE	MODE	SEX	ESTIMATED AGE AT DEATH												RED OCBRE	GREEN CLAY	GRAVE GOODS
				0	10	20	30	40	50	60								
1	P	?	F												X	X	X	
1A	C	-	?							?								
2	P	TF	?			H									X			
3	P	TF	F												X		X	
4	C	-	F												X			
5 <sup>a</sup>	P?	TF?	M?												?			
5 <sup>b</sup>	?	?	?															
5 <sup>c</sup>	?	?	?															
6	P	LF	F															
7	C	-	?														X	
8	C	-	?												X		X	
9	P	TF	F							H								
10	P	LF	M															
11	C	-	M														X	
12 <sup>a</sup>	?	?	M?												X		?	
12 <sup>b</sup>	?	?	F?															
12 <sup>c</sup>	?	?	?															
13	P	LF	?	H													X	
14	P	LF	F?												X		X	
15	P	LF	?			H									X	X	X	
15A	C	-	M												X		X	
16	P	LF	?	+											X			
17	C?	-																
18	C	-	F														X	
18A	P	LF	?												X		X	
18B	C	-	F												X		?	
19	P	LF	M														X	
20	P	TF	M							H					X		X	
21	P	?	F														?	
22	P	TF	M												X		X	
23	P	TF	M															
24	C	-	?															

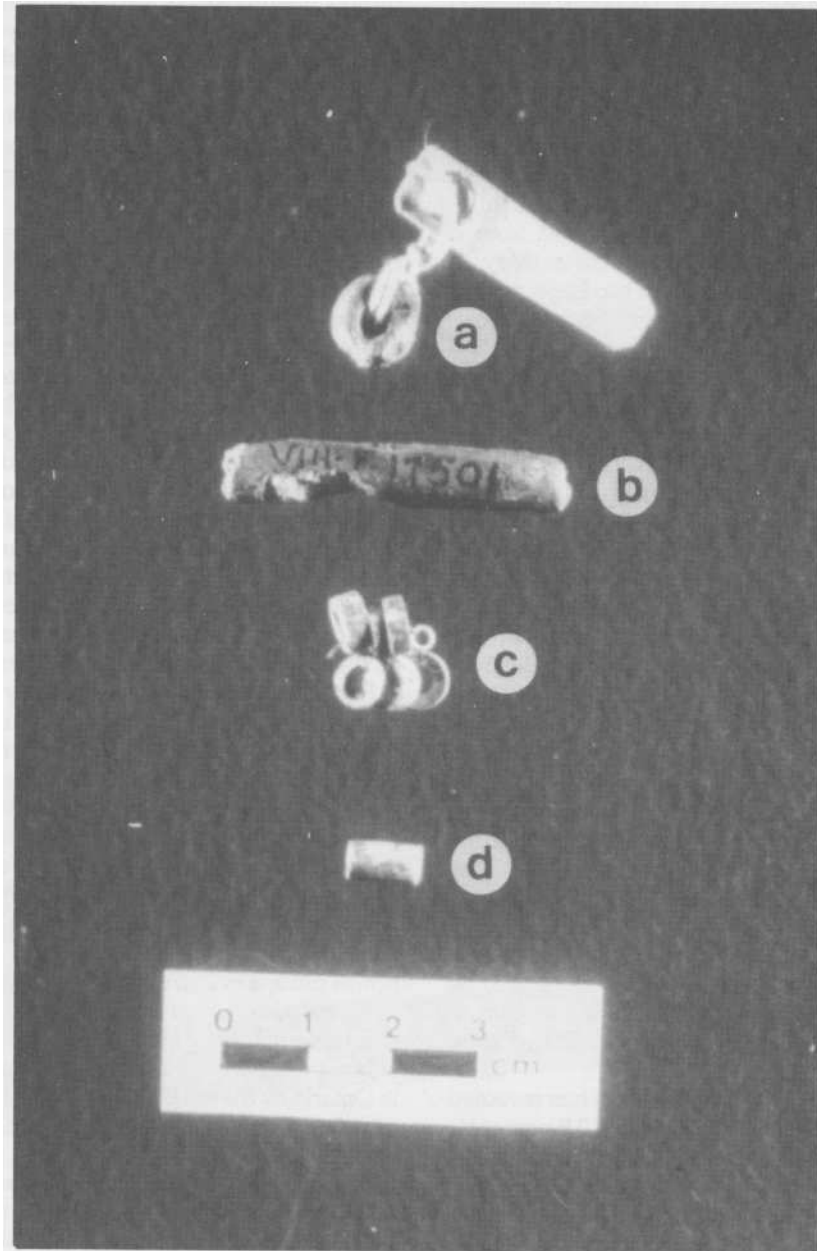


Figure 57. Picton Site, Beads Of Copper (a,b) And Shell (c,d)

conditions, its presence may have escaped the notice of the excavators. Papworth (1967:255) reports the recovery of green clay from the multi-component Stroebel and Feeheley sites, in the Saginaw Valley of Michigan (Figure 1). These sites are located in a northern extension of the Carolinian Biotic Zone (Fitting 1975:79). At the Stroebel site (20-SA-14), the green clay was in the form of balls associated with a disturbed cremation deposit containing numerous small subtriangular "cache" blades, flint chips, and fire-cracked rock (Papworth 1967:120). At the Feeheley site (20-SA-128), a large mass of green clay was recovered from a bark-encased, red ochre infant burial (May 21, Feature 2) in association with two large, square cross-section copper "awls", and a dense green mass was observed in a small pit (Feature 10), in association with three "Type C" triangular side-notched projectile points (Taggart 1967:12, Figure 29). The only other instance of the use of green clay as a grave inclusion is more than 1,000 km to the west, at the aceramic Pelican Lake site (21PO3), near Glenwood, Minnesota. Here, in 1954, on a small, glacially formed gravel knoll, a University of Minnesota crew carried out the salvage excavation of **six** individuals from four red ochre-stained graves threatened with destruction by gravel pit operations. In one of these graves, the in-flesh burials of an adult male (Burial 6) and a juvenile (Burial 5) were uncovered. Found in situ below the pelvis of the adult male was a "fist-sized" lump of green clay. Also found in situ with this burial was a gray sand-stone cigar-shaped (Cloudblower) pipe lying on the chest; a discoidal ground stone bead adjacent to the left wrist; a small carved shell ornament by the throat; and a chert flake knife found beneath the pipe. Close to this knife were an unidentified antler object and associated beaver incisor (Johnson 1962:97, Figure 1c)

Analysis of the Hind site chert has revealed that 84.8 percent is Onondaga, 10.9 percent is Selkirk, and 4.3 percent is Kettle Point material (Chris Ellis, personal communication 1993). Since bedrock outcrops of Onondaga and Selkirk chert can be found from just west of the Grand River, eastward into the Niagara Peninsula (closely paralleling the glauconitic Springvale outcrops, Figure 61), and the only other reported use of green clay is in the Saginaw basin in Michigan and at the Pelican

Lake site in Minnesota, confirmation of the Springvale outcrops as the source of the green clay would suggest it was not obtained through trade with groups outside Ontario but was recovered by local "Glacial Kame" people during chert-seeking forays into that area. Unfortunately, a microfossil analysis of a sample of the Hind Burial 15 green clay failed to resolve this matter (Bill Parkins, Personal communication 1994) and arrangements are now underway for additional analyses on green clay samples and known Ontario glauconite outcrops.

It was once thought that the source of much of the copper used by pre-contact native groups in the Great Lakes area was the bed-rock lodes of the Keweenaw Peninsula and Isle Royal, in Michigan (Holmes 1901:684-696). However, masses of varying sizes were scoured from these lodes during the last glaciation and deposited as "float" copper as far south as southern Illinois, Indiana and Ohio (Halsey 1992:2). One such "float", a large cobble-sized mass, weighing several kilograms, was recently discovered in a field near Leamington, Ontario. Hence, these "floats" should be considered as a possible source of raw material for some of the copper artifacts found on these "Glacial Kame" sites in Ontario.

Red ochre was widely used not only on these "Glacial Kame" burial sites but on most late Archaic and early Woodland burial sites throughout the Great Lakes area. Ritchie (1949:27) believed the source of the red ochre used at the Picton site was an extensive out-crop 56 km northwest of Picton. Very large seams of red ochre also outcrop in the Genesee Valley, New York, and are known to have been used in early historic times by native groups in that area (George McIntosh, personal communication 1994).

Analyses have been carried out on red ochre samples from the Hind and Picton sites in Ontario by Steven Donaldson (1994a, 1994b) and from the Pomranky site in Michigan by Paul Mikkola (1970). While these analyses determined the nature of the material, they failed to identify possible sources.

The source of the galena used at the Picton site is most likely the Kingdon vein, some fifteen kilometres northeast of Constance Bay, Ontario (Farquhar and Fletcher 1984:779-781). The Hind and Port Franks site galena was most likely obtained from the Rossie area de-

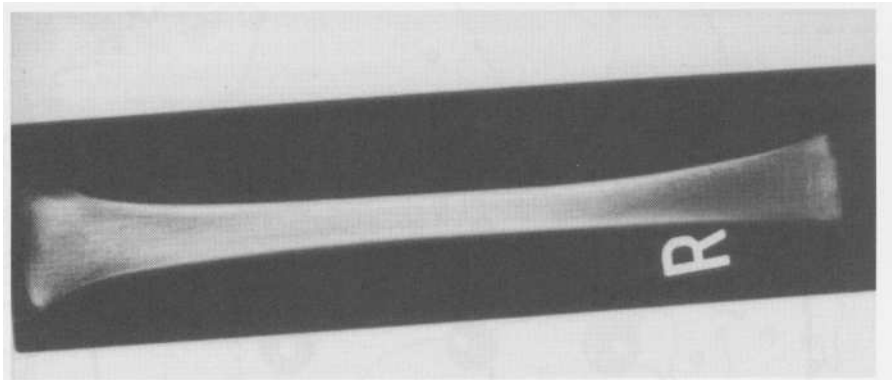
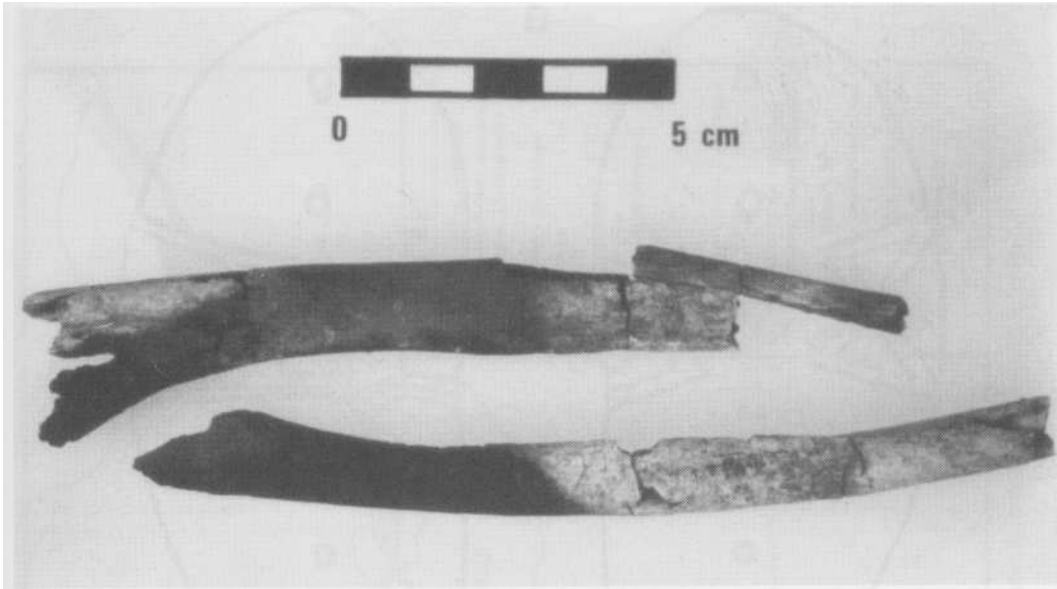


Figure 58. (Top) Hind Site Burial 7, Cremated Human Radius And Ulna, Reconstructed To Reveal Position Of Body During Burning  
Figure 59. (Bottom) Hind Site Burial 14, Radiograph Of Tibia Showing Harris Lines

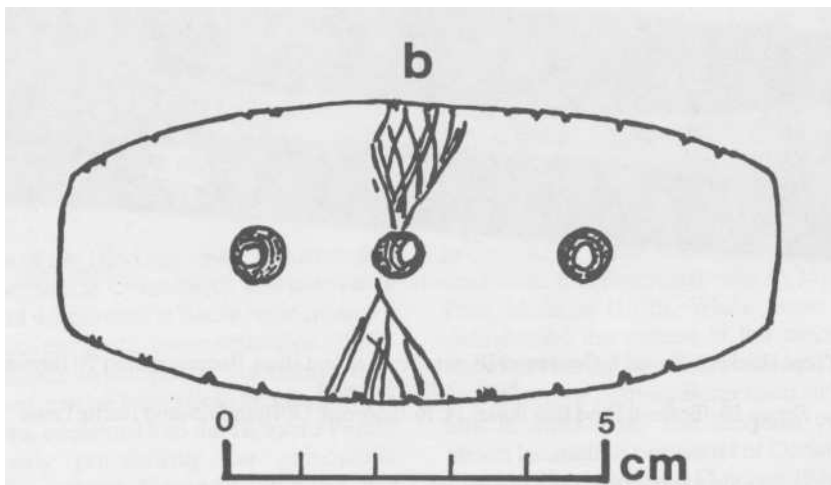
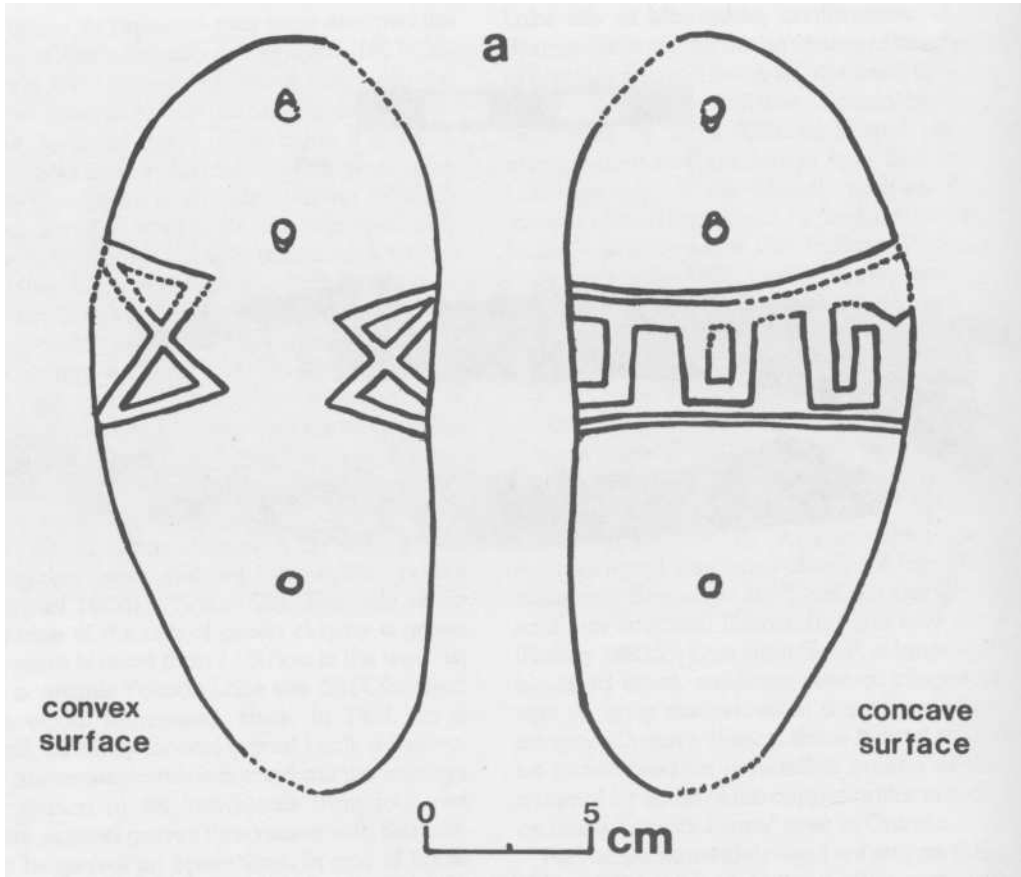


Figure 60. Drawing Of Meredith-Goodall Sandal-Sole "Gorget" (a) And Hind Burial 18A Slate "Gorget" (b), Showing Extant (Solid Lines) And Projected (Dotted Lines) Elements Of Engraved Designs



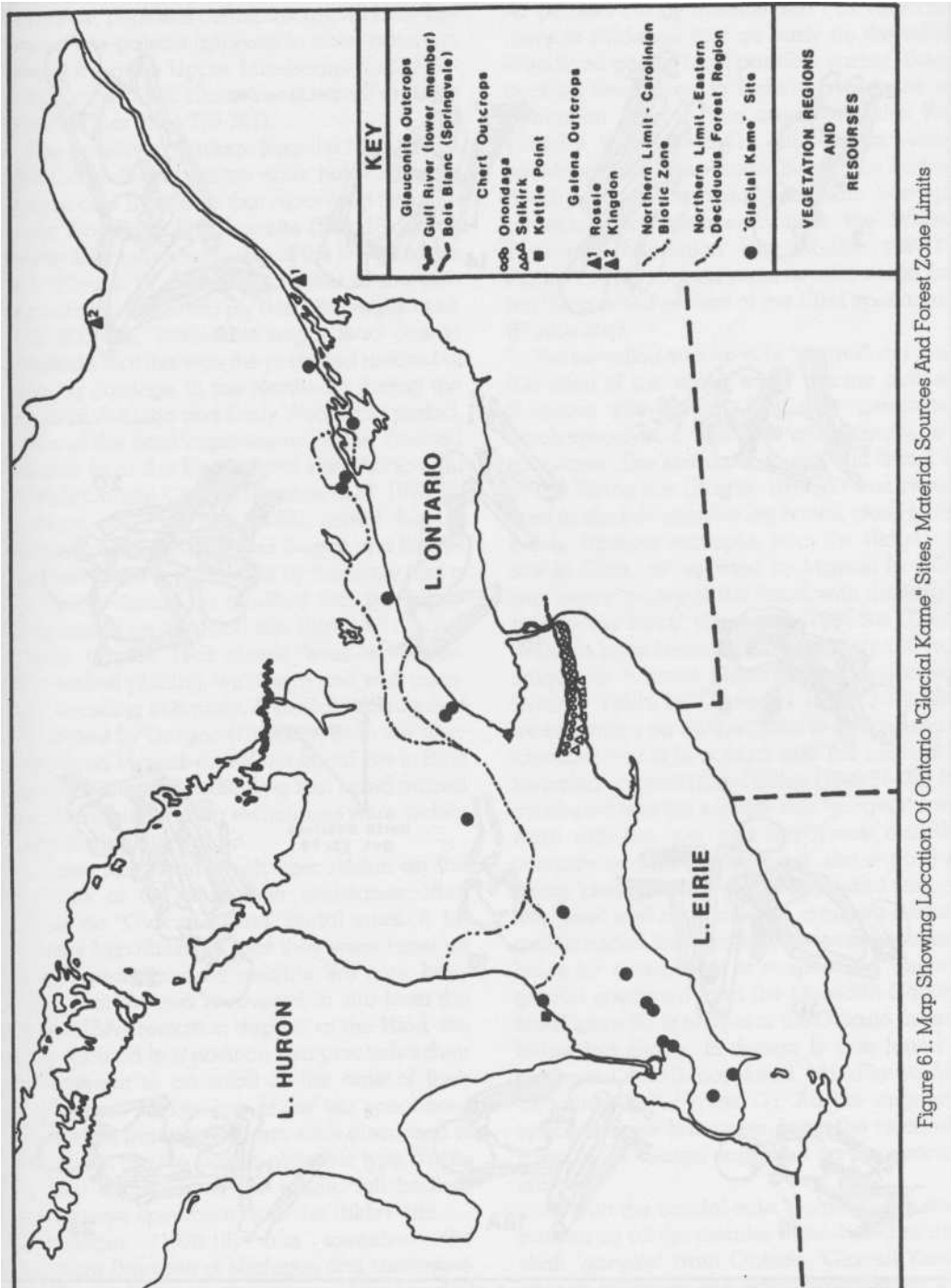


Figure 61. Map Showing Location Of Ontario "Glacial Kame" Sites, Material Sources And Forest Zone Limits

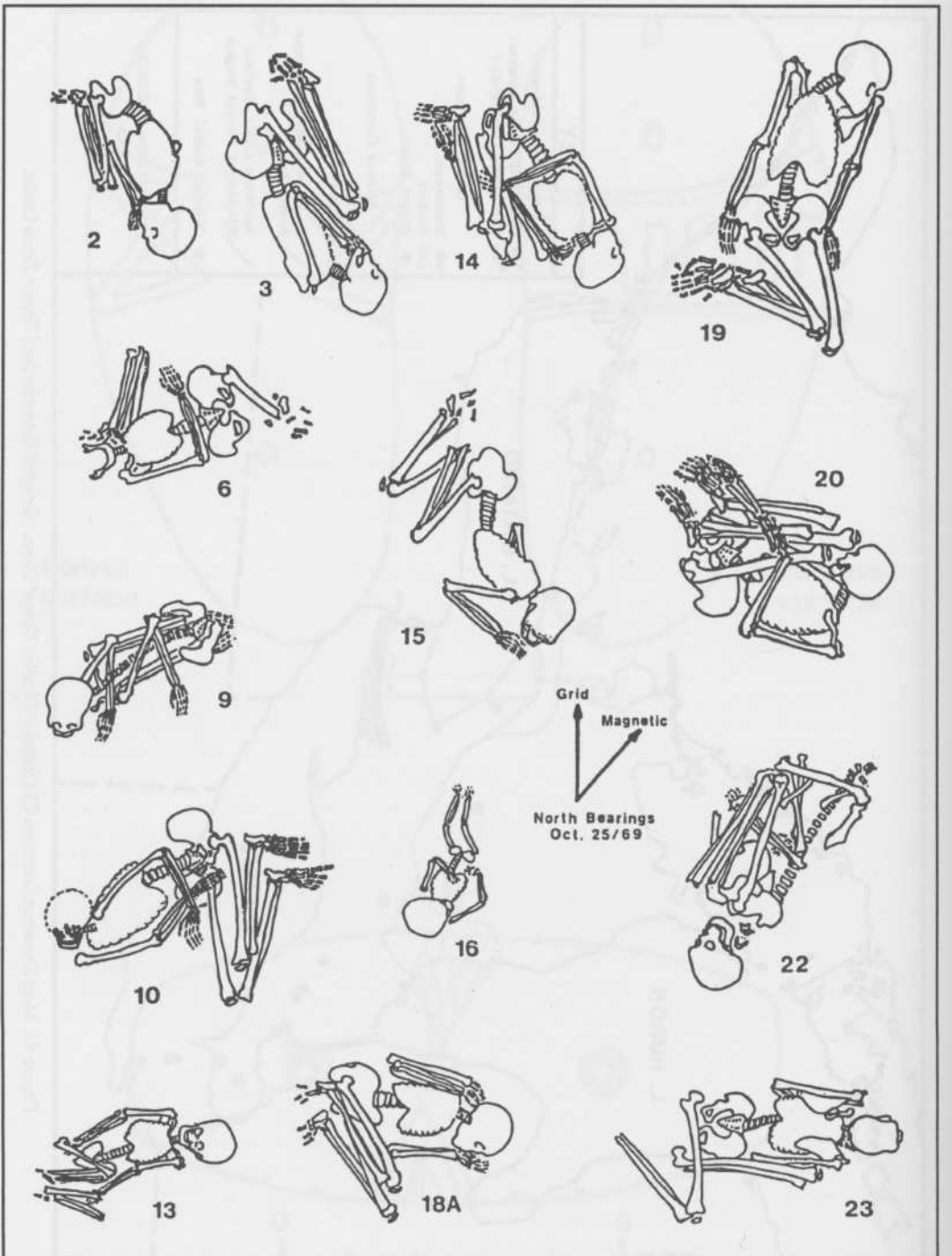


Figure 62. Hind Site, Graphic Summary Of In-Flesh Burial Alignments. Numbers Denote Burial Designation

posits in northwestern New York (Farquhar and Fletcher 1984:783), as was the galena used to make the Meredith-Goodall pendant (Ronald Farquhar, personal communication 1993). The Finlan site galena appears to have been obtained from the Upper Mississippi Valley de-posits, some 1,000 kilometres distant (Farquhar and Fletcher 1984:779-781).

The preserved cordage from the Hind, Meredith-Goodall and Picton sites has the same Z-spun and S-twist as that recovered from the Early Woodland Boucher site (VtFr-26), some twenty kilometres northeast of the Isle La Motte site (Figure 1), where 89 percent of the pre-served cordage is two ply (Heckenberger et al. 1990:200,202). While this might lead one to conclude that this was the preferred method of forming cordage in the Northeast during the terminal Archaic and Early Woodland period, casts of the cord impressions on the Vinette I vessels from the Bruce Boyd site (AdHc-4) in Norfolk County, Ontario (Spence et al. 1978:38; Spence and Fox 1986:25-26), reveal that 79 percent of the cordage was S-spun and that 84 percent of the cord formed by these ply had a Z-twist. It should be recalled that the fabric impression on the Hind site Burial 15 copper beads (Figure 19a) shows "over-two-under-one" twilled plaiting, with warp and weft members crossing obliquely. A similar technique is illustrated by Dragoo (1963:224) from the Morgan Stone Mound, an Adena burial site in Bath County, Kentucky, indicating that standardized textile manufacturing techniques were widely used during this period.

There has been much speculation on the function of the enigmatic birdstones often found on "Glacial Kame" burial sites. A favoured hypothesis is that they were used as atlatl (spear-thrower) weights. We note, how-ever, that the two recovered in situ from the Burial 15A cremation deposit at the Hind site were located in a position that precludes their attachment to an atlatl at the time of their deposition. All but one of the ten specimens recovered from the Ontario sites discussed in this report are the classic plain bar type (Table 2). The exception is the crude, full bodied, nubbin eye specimen from the Rikley site.

Granger (1978:18) has identified the Saginaw Bay area of Michigan and southwest-ern Pennsylvania as the source of the banded slate used in the manufacture of most bird-stones. However, as with the native copper, we

have found "float" cobbles of banded slate in the banks and beds of rivers, and along the shore of Lake Huron, in southwestern Ontario. As pointed out by Spence and Fox (1986:15), there is evidence that as early as the initial Woodland period (and possibly earlier) these cobbles were used to fashion birdstones on habitation sites in this area (see also Fox 1984:8-9; Wright 1963:41). Although providing no evidence of being made locally, the broken head portion of a completed plain bar-type birdstone was recovered from the Welke-Tonkonoh habitation site (Muller 1989:15, Figure 9). This specimen carries the same fine notching noted on one of the Hind specimens (Figure 20c).

The so-called sandal-sole "gorget", cut from the shell of the warm water marine mollusc *Busycum perversum*, has also generated much speculation. The term "gorget" may be a misnomer. The specimen found with Burial 10 at the Picton site (Ritchie 1949:32) was recovered in situ between the leg bones, close to the pelvis. Another example, from the Ridgeway site in Ohio, as reported by Matson in 1856, was found "on top of the head, with the larger end at the back" (Converse 1980:80). These artifacts have been considered a typical trait unique to "Glacial Kame" (Ritzenthaler and Quimby 1962:255; Converse 1980:16-17). The wear pattern on all the Ontario specimens is identical and is in accord with the method of fastening suggested by Ritchie (1949:36-37). He concluded that the sandal-sole "gorgets" were worn with the "toe" end uppermost and the concave surface outwards. A single cord or thong, knotted at one end, was passed through the "heel" end hole from the concave surface and threaded through the centre and "toe" end holes for attachment or suspension. The engraved specimen from the Meredith-Goodall site (Figure 60) is unique in the Ontario assemblage but similar in design to one found in northern Ohio (Moorehead 1910:Figure 526; Converse 1980:Figure 17). All the engraved specimens we have seen have the main element of the design engraved on the concave surface.

As with the sandal-sole "gorgets", the wear pattern on all the circular three-holed marine shell "gorgets" from Ontario "Glacial Kame" sites is identical: the stringing material had been threaded through one of the suspension holes from the convex side, passed along the

concave surface to the other suspension hole and threaded through this hole to the convex surface. None evidenced a wear pattern at the central hole. The specimen found with Burial 20 at the Hind site had the concave surface facing away from the body and was associated with a string of marine shell disc beads. This suggests that a classification as a "pendant" might be more appropriate.

It has been suggested (Ritchie 1949:36) that perishable articles such as feathers, claws, or fur strips, might have been attached to the "heel" hole on the sandal-sole "gorgets" and the central hole on the three-holed circular "gorgets". Such items would cause little, if any, wear at the point of attachment and, except in special circumstances (e.g., contact with copper grave inclusions), would leave no trace.

The wear pattern and hole diameters for the triangulate shell pendant recovered from Burial 14 at the Hind site (Figure 12), lends support to Ritchie's contention that broken sandal-sole "gorgets" were modified for re-use by their owners at the Picton site (Ritchie 1949:36, Figure 1 li-s). A careful re-examination of marine shell artifacts from other "Glacial Kame" sites might reveal similar evidence for recycling.

The bar or rectanguloid, marine shell gorgets recovered from the Sartori, Zimmer and Collins Bay sites have been found elsewhere only on sites attributed to "Glacial Kame" and are considered a diagnostic trait for such sites. They were worn with the convex surface facing outward (Converse 1980:53).

Although we could discern some use-smoothing of the striations apparent in the drilled holes on the slate "gorgets" from the Hind (Figures 20a, 22k) and Blackfriars Bridge (Figure 47b) sites, no definite wear pattern could be seen. In the absence of such clues, we are unable to support or refute their current designation as "gorgets". Nevertheless, we do have some reservations about this designation. It is notable that the specimen recovered from Hind Burial 18A was in the abdominal area in association with the modified carnivore mandibles (Figure 21c). The hatchured triangle design engraved on this artifact (Figure 60b) is not that unusual. This is a popular motif on engraved slate artifacts from Ohio, particularly the rectanguloid two-holed "gorget" (Converse 1978:33, 104). Furthermore, the Blackfriars Bridge specimen seems out of place in the

site's assemblage. Had it not been reported in association with typical "Glacial Kame" grave inclusions, we would have assigned it to a later temporal manifestation, probably Adena.

Worked deer metapodials resembling the "awls" from the Hind (Figure 24e-g), Sartori (Figure 39a) and Zimmer (Figure 43d,e) sites have been classified by Kenyon (1986:25,27, Plates 9,10,13,14) as "daggers". All the specimens described in our study, however, seem much better suited for use as awls than daggers, particularly the two smaller specimens found in association with Burial 18A at the Hind site (Figure 24f,g). These have highly polished, needle-like tips and would have provided less than three centimetres of penetration if used as daggers. Whatever their function(s), the available literature suggests that they have a wide distribution spatially and temporally (e.g., Winters 1969:48; Converse 1980; Figures 36, 41, 44, 45, 54, 66; Ritchie 1945: Plate 10.7, 1965:62, Plate 19; MacCord et al. 1957:Plate 7; Beauchamp 1902:263-264; Wintemberg 1936: Plate 14.26). These artifacts are therefore of little use as a cultural or temporal marker.

Worked deer metapodials resembling those from Burial 15 at the Hind site (Figure 18a-e) have been classified by others as "draw shaves" (Parker 1922:199, Plate 68, Figure 1), "bone-scraping tools" (Parker 1922:Plate 118) or the unused portion of the metapodial after the removal of the posterior cortex of the shaft to produce awls (Wintemberg 1948:6, Plate XVIII, Figures 10,11). Morrison (1986:Figure 3) illustrates caribou metatarsals used in a similar manner by the Inuit, and classifies the unused portion as an "exhausted bone core" in a reduction sequence, with the removed portion being used to manufacture projectile points, awls and marrow spatulae. He also suggests that some of these exhausted cores were later used as beamers (Morrison 1986:115).

While not totally rejecting these possibilities, we consider them unlikely for the Hind Burial 15 assemblage. None of our specimens have the use-wear pattern of beamers and none of Morrison's exhausted cores exhibit the neural canal modifications or stiae smoothing noted on the Hind specimens (*supra*). Since they were all found in close association with modified bear and fisher skulls, carnivore mandibles and beaver innominate (Figure 15), we suggest some ceremonial function for the Burial 15 metapodials.

A similar function is proposed for the unmodified and articulated deer metapodials from Burial 20, which were placed in close proximity to a modified bear skull and several chert bifacial points and cache blades (Figure 27a), and for the unmodified and use-polished right and left *Canis sp. radii* found with Burial 22 (Figure 37b).

Although the ground and perforated raccoon fibulae (Figure 34a-i) from Burial 20 at the Hind site have been classified as "needles" in Table 2, we are not entirely comfortable with this. If they were needles, why were the distal ends of the fibulae left intact? This greatly reduces their efficiency as needles. If they were awls, then why were the distal ends perforated? Why were cross holes drilled in some of them? Further study is necessary to resolve this issue.

The position of the marten foot bones, found at the feet of Burial 15, and the unidentified carnivore foot bones from the chest area of Burial 18A suggest the inclusion of small carnivore pelts and/or medicine bags, similar to those used by the historic Potawatomi (Quimby 1960:131, Figure 66), in these graves. The number and placement of the carnivore foot-bones found at the feet of Burial 20 suggest the inclusion of a single paw only.

Like the deer metapodial "awls", modified carnivore and omnivore mandibles are too widely distributed, spatially and temporally, to serve as diagnostic markers. As more sites are excavated, age, gender or status correlation may eventually be possible.

The two modified black bear skulls from the Hind site (Figures 17a, 31) are almost identical in manufacture: the rostral portion of the skull had been cut, ground and drilled to fit over a human face as part of a ceremonial mask, in a manner similar to the wolf mask illustrated by Baby (1961:Figure 3) from the Williams site in Ohio. The only other such artifact found to date in Ontario is the incomplete specimen from the Trenton Mountain site (Figure 54d). In Ohio, one fragmentary and one complete black bear "mask" were recovered from the Williams Cemetery site (Stothers and Abel 1993:68, Figure 19D; Converse 1980:31, Figure 8). These differ from the Ontario specimens in that two additional pairs of holes had been drilled along the mid-line of the skull, one pair near the posterior edge of the specimen, the other just above the nasal opening. These are not

evident on the complete specimen illustrated in the Stothers and Abel (1993:Figure 19D) report but can be clearly seen in the Converse (1980:34) illustration. Not visible in either of these illustrations are wedge-shaped cut marks which appear to extend around the entire cut edge of this specimen (a small portion of the posterior edge is missing). On the thicker portions of the bone these cut marks are about one millimetre wide and are spaced at intervals varying from one millimetre to almost two millimetres.

The presence of unmodified Blanding's turtle shell fragments as grave inclusions at the Hind site is puzzling. Although Bleakney's (1985) study of the utilization of turtles by native groups in Ontario provides valuable information on the reasons certain species were preferred, it sheds no light on the Hind specimens. This is also the case with the Blanding's turtle shell carapaces recovered from the Knight and Norton Mound burials. These were complete and most carried engraved designs on their inner surface (Griffin et al. 1970:31,141-142).

Truncated cone and cigar-shaped stone pipes, commonly referred to as "cloudblower" pipes, were recovered from four of the Ontario "Glacial Kame" burial sites (Table 2). The Rikley specimens had shaped pebble inserts (Figure 41b) and the Hind specimen had a cut and bevelled shaft section of a *Canis sp. tibia* inserted in its chipped mouthpiece (Figure 17c). Since wood or bone mouthpiece inserts have been recovered from prehistoric sites elsewhere in North America (Alex von Gernet, personal communication 1995), this raises some doubt that the bone insert in the Hind pipe is merely a repair solution unique to that specimen. Similarly, the Rikley pebble insert appears to be a functional part of the pipe itself. Winters (1969:68) suggests that since many of these pebble (occasionally clay) inserts are coated with a carbon residue, they may have acted as a sort of filter. "Cloudblower" pipes have been recovered from Archaic sites in Minnesota, Illinois, Indiana, Ohio, Kentucky, Tennessee and northern Alabama (Johnson 1962:97; Winters 1969:68-70; Cunningham 1948; Converse 1980). By the Early Wood-land Meadowood phase in southern Ontario and western New York (Ritchie 1965:179-200; Spence et al. 1990:125-129), pottery, in the form of Vinette 1 vessels and cigar-shaped "cloudblower" pipes, makes its appearance along-

Table 2. Ontario "Glacial Kame" Trait List

CATEGORY	TRAIT	EXAMPLE		SITE													
		Figure	Item	Hind	Sartori	Rikley	Caron 2	Meredith-Goodall	Zimmer	Port Franks	Blackrivers	Schweitzer	Finlan	Trenton Mountain	Picton	Collins Bay	
SHELL Gorgels or Pendants M = marine F = freshwater	Plain sandal-sole (M)	41	a	-	1	-	-	-	-	-	-	1	-	5	-	-	
	Engraved sandal-sole (M)	42	g	-	-	-	-	1	-	-	-	-	-	-	-	-	
	Amorphous re-worked sandal-sole (M)	*11	i,r,s	-	-	-	-	-	-	-	-	-	-	3	-	-	
	Trianguloid (re-worked sandal-sole?) (M)	12	-	1	-	-	-	1	-	-	-	-	-	-	-	-	
	Trianguloid (M)	42	d	-	-	-	-	1	-	-	-	-	-	3	-	-	
	Three-hole disc "gorgel" (M)	9	-	3	-	-	-	2	1	-	-	1	11	-	-	-	
	Two-hole disc "gorgel" (M)	49	c	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Disc, central hole, diametrically opposed double suspension holes (M)	42	a	-	-	-	-	1	1	-	-	-	-	-	-	-	
	Short, rectangular, two-holed (M)	49	b	-	-	-	-	-	-	-	-	1	-	-	-	-	
	Long, rectangular ("bar"), two-holed (M)	40	b	-	1	-	-	-	1	-	-	-	-	-	-	2	
	"Flask-shaped" (M)	56	d	-	-	-	-	-	-	-	-	-	-	-	1	-	
	Effigy (M)	*11	q	-	-	-	-	-	-	-	-	-	-	-	1	-	
	Large, drilled "gorgels" or pendants (M)	48	b	-	-	-	-	-	-	-	-	-	2	1	1	-	
	Simulated bear canine tooth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	Problematics	Conch container (?) (M)	*11	a	-	-	-	-	-	-	-	-	-	-	-	1	-
Drilled and notched container (?) (M)		39	h	-	1	-	-	-	-	-	-	-	-	-	-	-	
Mollusc valve	Unmodified (F)	17	d	10+	-	-	-	-	-	-	-	-	-	-	-	-	
	Cut or perforated (F)	23	i,j	4	-	-	-	-	-	5	-	-	-	-	-	-	
Beads	Discoidal (M)	37	a	3337	54	-	-	-	-	-	-	87	-	86	-	-	
	Short cylindrical (M)	11	-	18	-	-	-	2	52	-	1	1	-	3	-	-	
	Long cylindrical (M)	*11	g	-	-	-	-	-	-	-	-	-	-	13	-	-	
	Marginella shell (M)	10	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
	Large unidentified Oliva sp. shell (M)	42	f	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHIPPED STONE Projectile Point	Hind (Feeheley) biface	22	a-e	8	-	-	-	-	2	3	-	-	-	-	-	-	
	Hind (Feeheley) preform	28	f-i	4	-	-	-	-	-	-	-	-	-	-	-	-	
	Meadowood biface (erratic)	44	f	-	-	-	-	-	-	1	-	-	-	-	-	-	
	Meadowood preform	40	a	-	1	-	-	-	-	-	-	-	-	-	-	-	
	Unclassified bifaces	28	j	2	-	-	-	-	-	1	-	-	-	-	1	-	









side the distinctive triangular "cache blades" and side-notched point type, bar and expanded-body birdstones with pop-eyes, and large trapezoidal, two-holed slate "gorgets".

Since relatively few terminal Late Archaic and initial Early Woodland sites in this area have been excavated under controlled conditions, and some have overlapping radiocarbon dates (Ellis et al. 1990b:Table 4.2; Spence et al. 1990:Table 5.1), the discovery of stone "cloud-blower" pipes in association with a nubbin-eyed, expanded-body birdstone at the Rikley site poses a problem in interpretation. Did the use of stone "cloudblower" pipes continue well into the evolution of the birdstone types or was the protuberant-eye, expanded-body birdstone already in use prior to Meadowood? Associated radiocarbon dates suggest a rough temporal range of 1,500 to 800 B.C. for the stone "cloudblower" pipe (Winters 1969:105; Spence et al. 1990:125). Given this distribution and time span, we echo Winters (1969:69) in suggesting that a refinement of typology and range is warranted for both the pipes and the birdstones.

As noted earlier, the placement of some of the grave inclusions at the Hind site probably has medicine or ceremonial (social and/or religious) connotations. There can be little doubt that the red ochre deposit, found beneath the right hand and wrist of Burial 3, is the remains of a personal medicine bag. The position of the antler tine flaking tools, copper "awls" and the ground and perforated raccoon fibulae, found with Burial 20, may represent a tool kit. The close association of the use-polished and modified deer, carnivore and omnivore bone, found with burials 15, 18A, 20 and 22, suggest they are probably ceremonial trappings of the individual interred. As such, they would have been used by the person during his lifetime and would not have been mortuary items made specifically for the interment.

Although all of the freshwater molluscs recovered from the Ontario "Glacial Kame" sites in this report were edible species (Gerry Mackie, personal communication 1995), most of the Hind site valves had been modified or evidenced use-wear. This would suggest that these were part of the tool or ceremonial possessions of the deceased rather than food offerings placed in the graves at the time of burial. Since none of the Port Franks speci-

mens had been modified or evidenced use-wear, their function as food offerings is a more reasonable explanation. It could also be argued that these served the same purpose as the chert preforms: a handy supply of material ready to be used as the need arose in the afterlife.

In view of the fact that antler, bone and limestone grave inclusions at the Sartori, Rikley, Blackfriars Bridge and Picton sites had been eroded in the same manner as those recovered from Burial 20 at the Hind site (*supra*), it seems possible that these grave inclusions were also in contact with the same reactive (now decayed) material as that from Burial 20 at the Hind site. An analysis of this material might identify a hitherto unrecognized "Glacial Kame" burial practice.

In his study of the "Glacial Kame Indians", Converse (1980:151-156) commented on the lack of diagnostic artifacts which could link these burials to any of the occupational sites in his study area. He also suggested a concerted effort be made to find such a link, and recommended a re-examination of collections from previously excavated burial and occupational sites in the study area. Although Converse considered the Ontario sites known at that time to be peripheral to his "nuclear Glacial Kame" area (Converse 1980; Figure 82), the Hind site excavation and recent investigations by others in this province (and elsewhere) have provided some of the artifacts and associated radiocarbon dates to establish the sought after link.

Diagnostic chert bifaces have been recovered from five of the 13 Ontario "Glacial Kame" burial sites discussed in this paper (Table 2). With the exception of the "Meadowood" cache blade from the Sartori site (Figure 40a) and the "Meadowood" erratic from the Port Franks site (Figure 44f), all of these fit into the medium to large notched Small Point category, as defined by Ellis et al. (1990b:Figure 4:18) and Kenyon (1989:15). In Ontario, these points are referred to as "Hind Points" (Spence and Fox 1986: Figure 1.4). Kenyon (1989:19) considered these points a late development in his Small Point classification and, based on associated radio-carbon dates, suggested a temporal span in Ontario of 1,000 to 700 B.C.

With the exception of those associated with Burial 19, all the diagnostic chert bifaces from the Hind site were Hind Points and preforms.

Since the re-worked Hind Point recovered in situ with Burial 15 (Figure 18i) has been associated with a radiocarbon date of 2,875 (+/-75) B.P., we suggest a similar date for the rest of the Hind Point assemblage from this site.

The presence of "Meadowood" bifaces at two of the Ontario "Glacial Kame" burial sites (Port Franks and Sartori) raises the possibility that these sites are multi-component. However, as pointed out by Spence and Fox (1986:6), some of the Hind Points are within the range of variation of Meadowood forms and are considered to be technically and stylistically transitional from Small Point Archaic forms to Meadowood (Kenyon 1989: Figure 2a-c; Ellis et al. 1990b:107; Ritchie 1961:35). Indeed, as noted by Spence et al. (1990:129), in feature 4, locus 3, at the Muskalonge Lake site in New York (Figure 1), assigned by Ritchie to the early Meadowood complex (Ritchie 1965:132), two side-notched Meadowood points were recovered in situ with five Hind points (Ritchie 1955: 18, Plate 11). Further east, at Isle La Motte, Vermont (Figure 1), a burial site identified as "Glacial Kame" by Ritchie (1965:131-134, Plate 48), and radiocarbon dated at 2930 (+/-80) B.P. (Heckenberger et al. 1990:178, Table 1), produced a thin, finely chipped chert biface that resembled the Meadowood type (Ritchie 1965: 134). Meadowood points in New York have radiocarbon dates spanning 998 (+/-170) B.C. to 563 (+/-250) B.C. (Ritchie 1965:180). In Ontario, the span is 1030 (+/-105) B.C. to 370 (+/-70) B.C. (Spence et al. 1990:Table 5.1).

Hind and Hind-like points in southern Ontario have been documented in situ at such occupation sites as Welke-Tonkonoh (Muller 1989:18), Liahn 1 (Kenyon 1988:Figure 10) and Thedford 2 (Ellis et al. 1990a:10, Figure 1). Surface finds have been reported from the Van Bommel site (Ferris 1989:Figure 3j) and from a ridge along the Chanel Ecarte, Ste. Anne Island (Adams 1989:14). Four Hind points in the Mike Taylor collection, Fort Erie (TA-297, TA-298, TA-303, TA-344), were recovered in association with a three-holed circular marine shell "gorget" (TA-277) from the Surma site, Fort Erie, but lack in situ documentation (Jim Pengelly, personal communication 1993).

South of the Great Lakes, in Michigan and Ohio, point forms similar to the Hind are referred to as Feeheley points (Ellis et al. 1990b: 107-108). In this area there seems to be some disagreement about what constitutes a

"Feeheley" point, however. In Michigan, the current consensus is that, though morphologically comparable (Lovis and Robertson 1989:-232), true "Feeheley" points are considered a smaller corner-removed variety distinct from Hind points. Several of these have been recovered from the burial component of the Andrews site, a few kilometres northeast of the Feeheley site (Figure 1; Papworth 1967:45-52, Map 2, Plate 2,l,m,n, Plate 4,a). There were no Hind points recovered from the Feeheley site itself (William Lovis, personal communication 1995). In Ohio, Stothers and Abel (1993:32) use the term "Feeheley" to embrace not only Hind points but Brewerton corner-notched and some Meadowood forms as well (Stothers and Abel 1993:32, Figure 22A). Some of their "Feeheley" points from the Hickory Island 2, Snyder and Williams Cemetery sites do indeed bear a striking resemblance to the Hind points (Stothers and Abel 1993:Figures 10A, 20A,D, 24A). In addition to the Hind-like "Feeheley" points, the Williams Cemetery site (Figure 1) produced a wide range of grave inclusions, many virtually identical to those in the Hind assemblage. Included are two worked black bear skull "masks", plain and nubbin eye bar birdstones, stone cigar-shaped pipes (some with associated plugs or "filters"), two-holed rectanguloid slate "gorgets", Type 1 copper beads, discoidal and short tubular marine shell beads, deer metapodial "awls", antler tine punches, flaking tools and projectile points, as well as unworked mammal long bones evidencing considerable use polish (Stothers and Abel 1993:Figures 19, 20).

Stothers and Abel (1993:79) have suggested that the Hind and Williams Cemetery populations may have been closely inter-related, perhaps even ethnically and biologically". They also interpret the Hind site as the cemetery component of a "local center" (1993:55) in their "modified coalescence/dispersal model of southwestern Lake Erie basin settlement-subsistence systems between circa 2,500 B.C. and A.D. 1" (1993:51-60, Figure 11). Furthermore, they suggest that isolated interments, found some distance from these "local band" and "regional" burial centres, may represent individuals whose remains were not returned to these larger burial sites for various reasons, including feasibility or lack of social status (Stothers and Abel 1993:79).

Our collapsed burial chamber theory, pro-

posed to account for the position of Burials 22, 23 and associated artifacts at the Hind site, would seem to fit Stothers and Abel's "local center" component in their "coalescent/dispersal" model but not their alternate "hub and spoke" model (Stothers and Abel 1993:60-64, Figure 11), which would restrict use of the "base camp" mortuary site to the late spring. As for their proposal that lack of social status might account for some of the isolated interments, it should be noted that all of the Ontario examples were accompanied by several "status" items (see Port Franks, Blackfriars Bridge, Schweitzer, Weston and Port Hope sites, *supra*).

Stothers and Abel (1993:67-73) suggest that the Williams Cemetery and the Sidecut Crematory, located just across the Maumee River, were "related but functionally specific locales within a large focal interacting center", where interacting local bands gathered to ritually bury their dead. According to this proposal, cremation was first carried out at the Sidecut Crematory and the remains gathered up and transported across the river to the Williams Cemetery for burial.

Stothers and Abel (1993:68-73) report three independent caches of classic Turkey-tail points, Fulton County Harrison type variants (Didier 1967), and bi-pointed, ovate bifacial blades (Ritzenthaler and Quimby 1962:115) from the Sidecut Crematory. If their proposed crematory/cemetery complex dates to the Late Archaic, if the triangular shell pendant recovered from Burial 14 at the Hind site (Figure 12) is accepted as a re-worked sandal-sole "gorget", and if Stothers and Abel are correct in their suggested Hind/Williams Cemetery population link, then we accept the possibility that "Glacial Kame" and "Red Ochre" are not separate "cultures". Ritzenthaler and Quimby (1962:253-255) foresaw this possibility, noting their overlap, spatially as well as temporally, and the difficulty in assigning affiliation to sites lacking either the Turkey-tail points or the sandal-sole "gorget". They were also aware of other "probably related" "cultures" in the overlapping "Glacial Kame" and "Red Ochre" areas (Ritzenthaler and Quimby 1962:256). Other explanations are also possible. For example, since the Williams Cemetery site is multi-component (Stothers and Abel 1993:51-60), it is conceivable that the Sidecut Crematory turkey-tail points may not be contemporary with

the "Glacial Kame" component of the Williams Cemetery. A similar overlap exists at the multi-component Andrews site in Michigan (Papworth 1967:Plates 2,4,8), and at the Vinette habitation site and its associated Oberlander No. 2 cemetery site in **New York** (Ritchie 1965:-189, Plate 60). Alternatively, the diagnostic artifacts of these two "cultures" may actually be the physical manifestations of overlapping trade networks, managed by many loosely connected local bands in the Great Lakes and adjacent areas. These bands could have been sharing corporal and spiritual needs which were governed by their geographical and temporal position, and their access to the sources which filled these needs. The inclusion of personal possessions in the graves with the deceased suggests that these people envisaged a relatively familiar afterlife environment — one which would require the use of most of their personal belongings and ensure continuance of their former status in life.

While spatial and temporal position could explain the differences noted in the sites dealt with in the preceding discussion, it should be borne in mind that much of the available "Glacial Kame" data have been obtained under less than ideal conditions. Hence, current constructs of the Great Lakes Late/Transitional Archaic have a significant element of uncertainty. Whether or not "Glacial Kame" and "Red Ochre" will continue as valid cultural divisions or yield to alternate constructs will have to await the results of future studies in this field.

## CONCLUSIONS

Despite the noticeable progress over the last two decades, a great deal of detailed field-work, laboratory analyses and comparisons of results remains to be done to bridge the large gaps in our understanding of the Late Archaic/Early Woodland developments in Ontario and adjacent areas. The apparent regional differences noted in this report as well as the possible multi-component nature of some of the burial sites so far studied, warrants a cautious approach. Meticulous procedures during excavation and in subsequent laboratory analyses will be required to sort out and explain possible spatial and temporal differences in the burial procedures, and to connect these burials to contemporary occu-

pation sites. It is hoped that this report will serve as a reliable foundation for future efforts.

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